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Sugiyama et al.

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(54) **IMAGE FORMING APPARATUS**

(71) Applicants: **Kyoko Sugiyama**, Obu (JP); **Junki Ueyama**, Nagoya (JP); **Yusuke Murodate**, Nagoya (JP)

(72) Inventors: **Kyoko Sugiyama**, Obu (JP); **Junki Ueyama**, Nagoya (JP); **Yusuke Murodate**, Nagoya (JP)

(73) Assignee: **Brother Kogyo Kabushiki Kaisha**, Nagoya-shi, Aichi-ken (JP)

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G03G 15/00 (2006.01)
B65H 1/04 (2006.01)

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CPC ***G03G 15/6529*** (2013.01); ***G03G 15/6511*** (2013.01); *B65H 1/04* (2013.01); *B65H 2405/1117* (2013.01); *B65H 2405/1124* (2013.01)

(58) **Field of Classification Search**
CPC B65H 2405/1117; B65H 2405/1124; B65H 2405/11162
USPC 271/147, 157, 171
See application file for complete search history.

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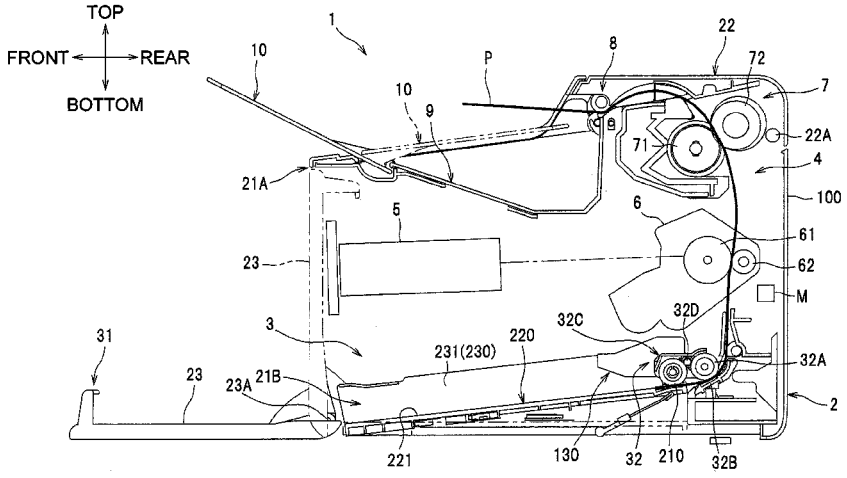
Primary Examiner — Howard Sanders
(74) *Attorney, Agent, or Firm* — Banner & Witcoff, Ltd.

(57) **ABSTRACT**

An image forming apparatus includes an image forming portion configured to form an image on a recording sheet, a main body including a pair of frames and a bridging member connecting the pair of frames, a feed roller, a sheet receiving plate, and a lifting member. The sheet receiving plate is configured to receive the recording sheet, and pivot between a nearby position where the sheet receiving plate is disposed near the feed roller and a remote position where the sheet receiving plate is disposed remote from the feed roller. The lifting member is disposed opposite to the feed roller relative to the sheet receiving plate and configured to lift the sheet receiving plate such that the sheet receiving plate is disposed in the nearby position. The lifting member includes a pivot shaft rotatably supported by the bridging member and a lift portion configured to contact the sheet receiving plate.

20 Claims, 14 Drawing Sheets



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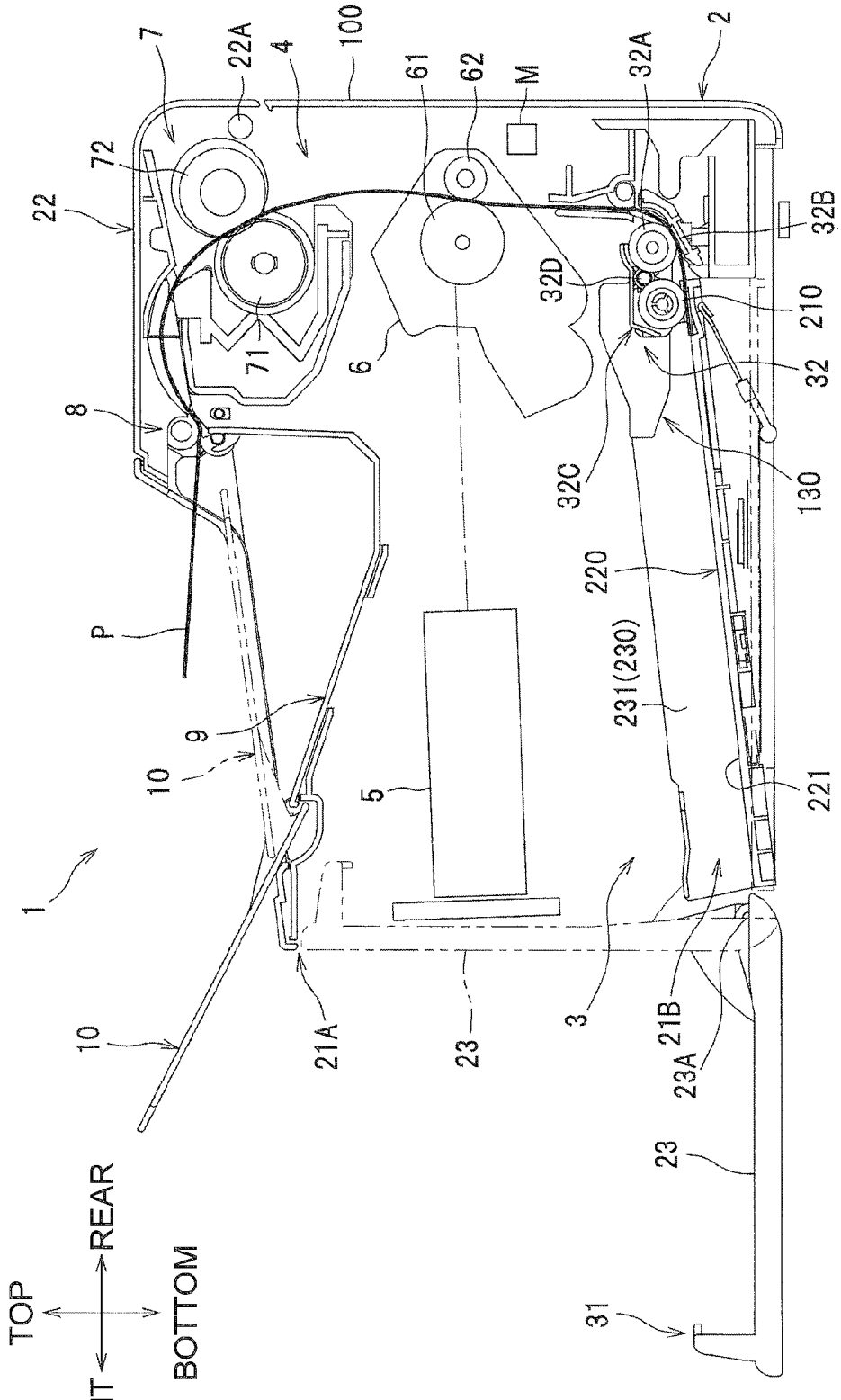
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P
231(230)
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TOP
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FRONT
BOTTOM

Fig.1

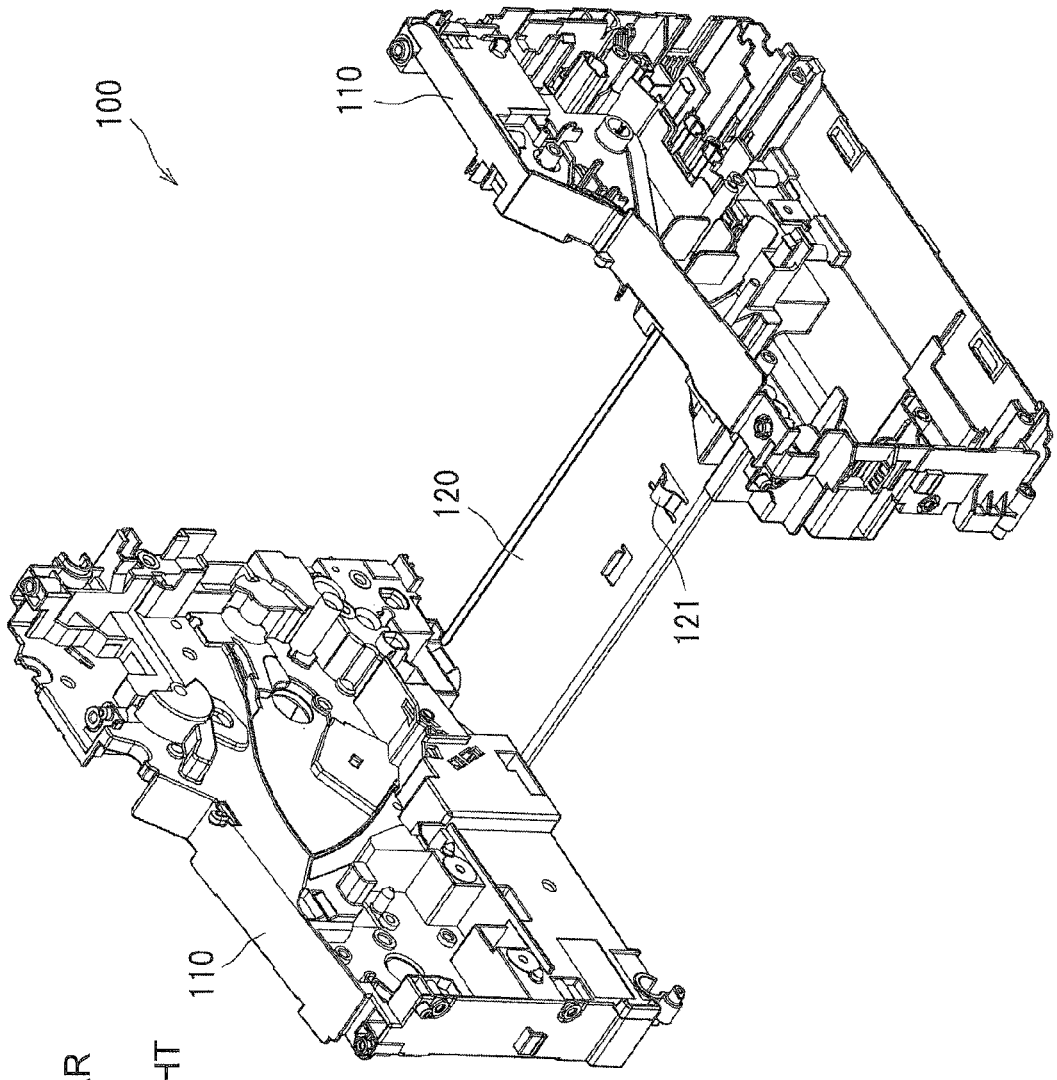
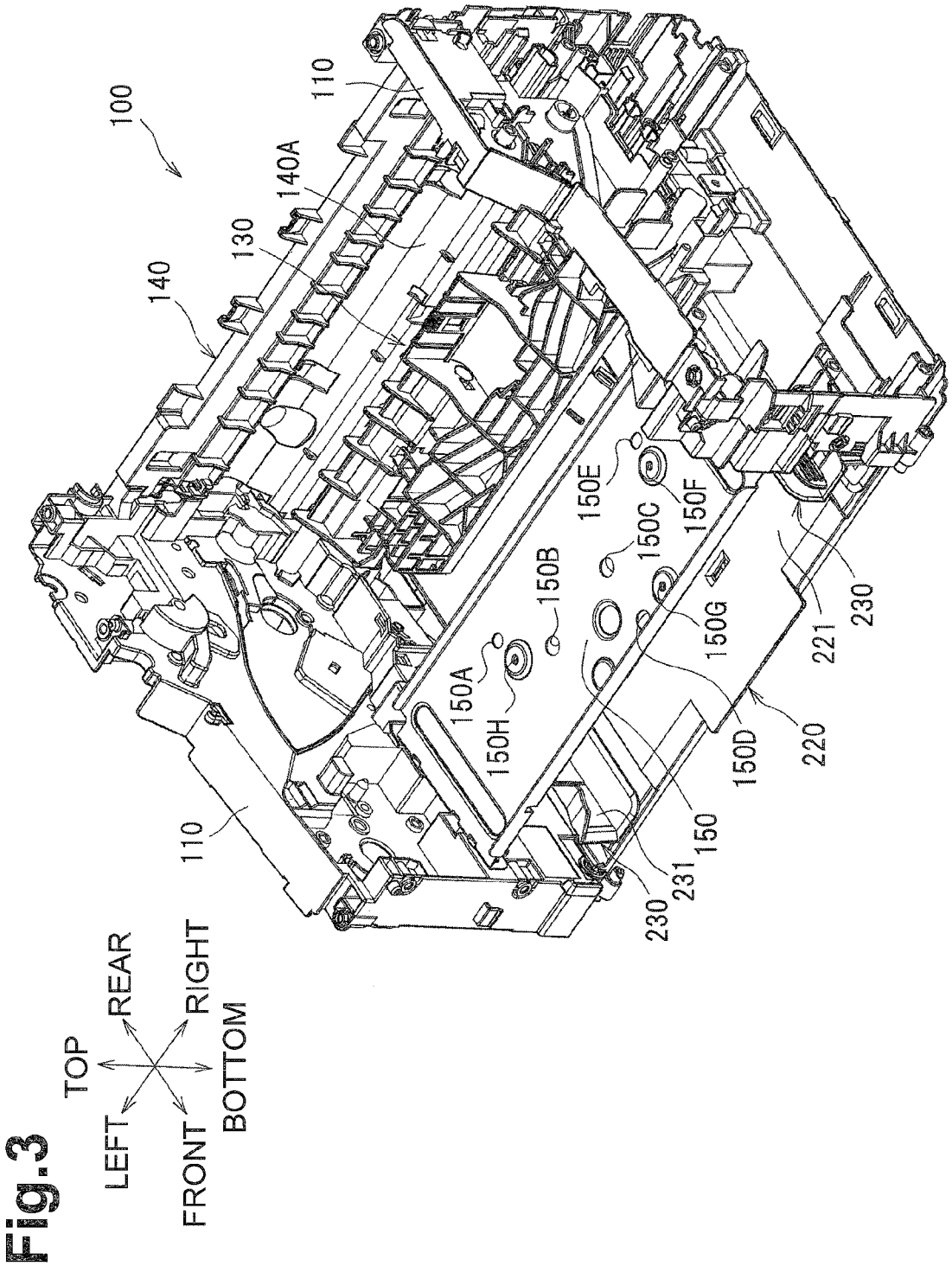


Fig.2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BOTTOM

Fig.3

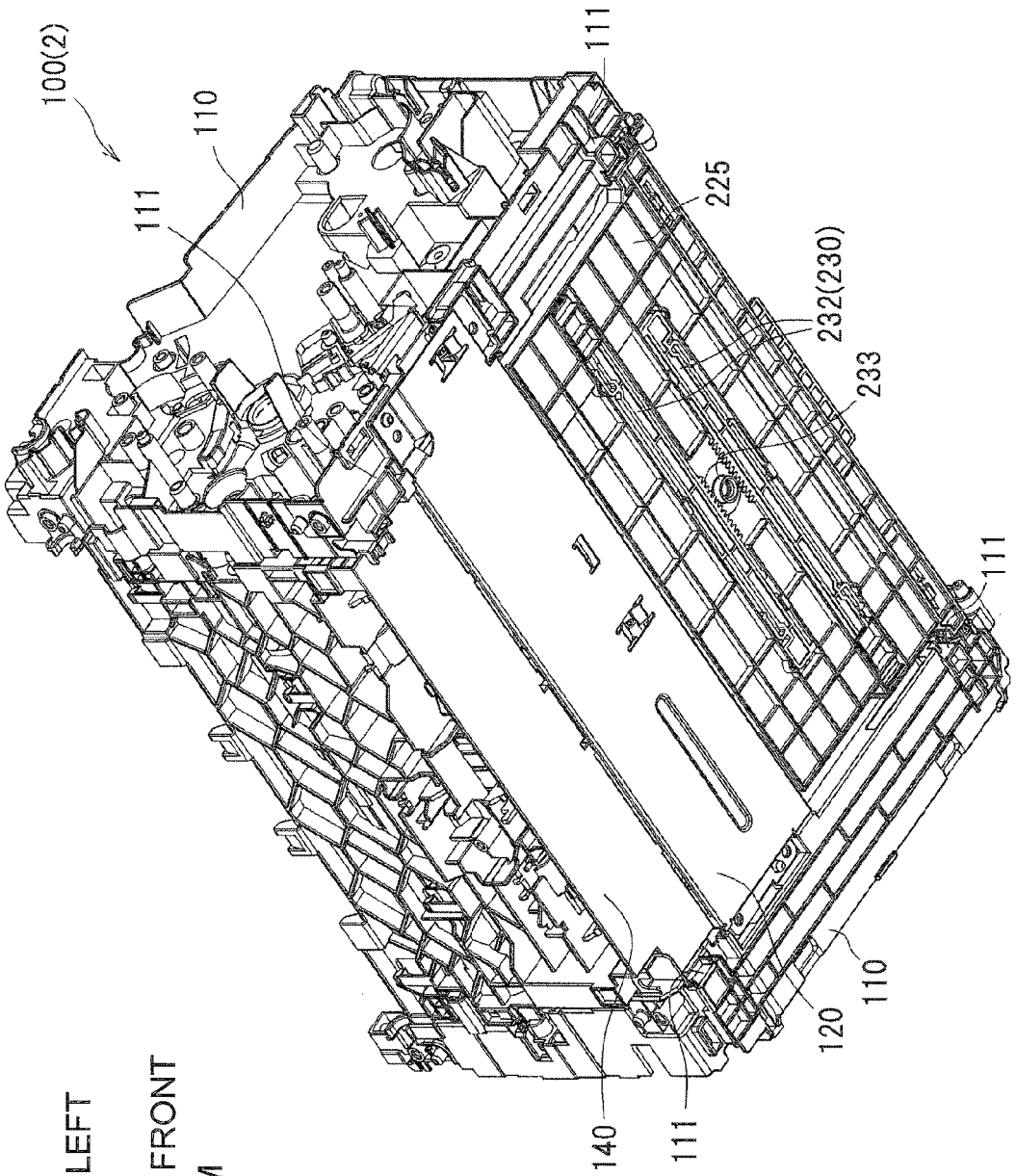
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Fig.4

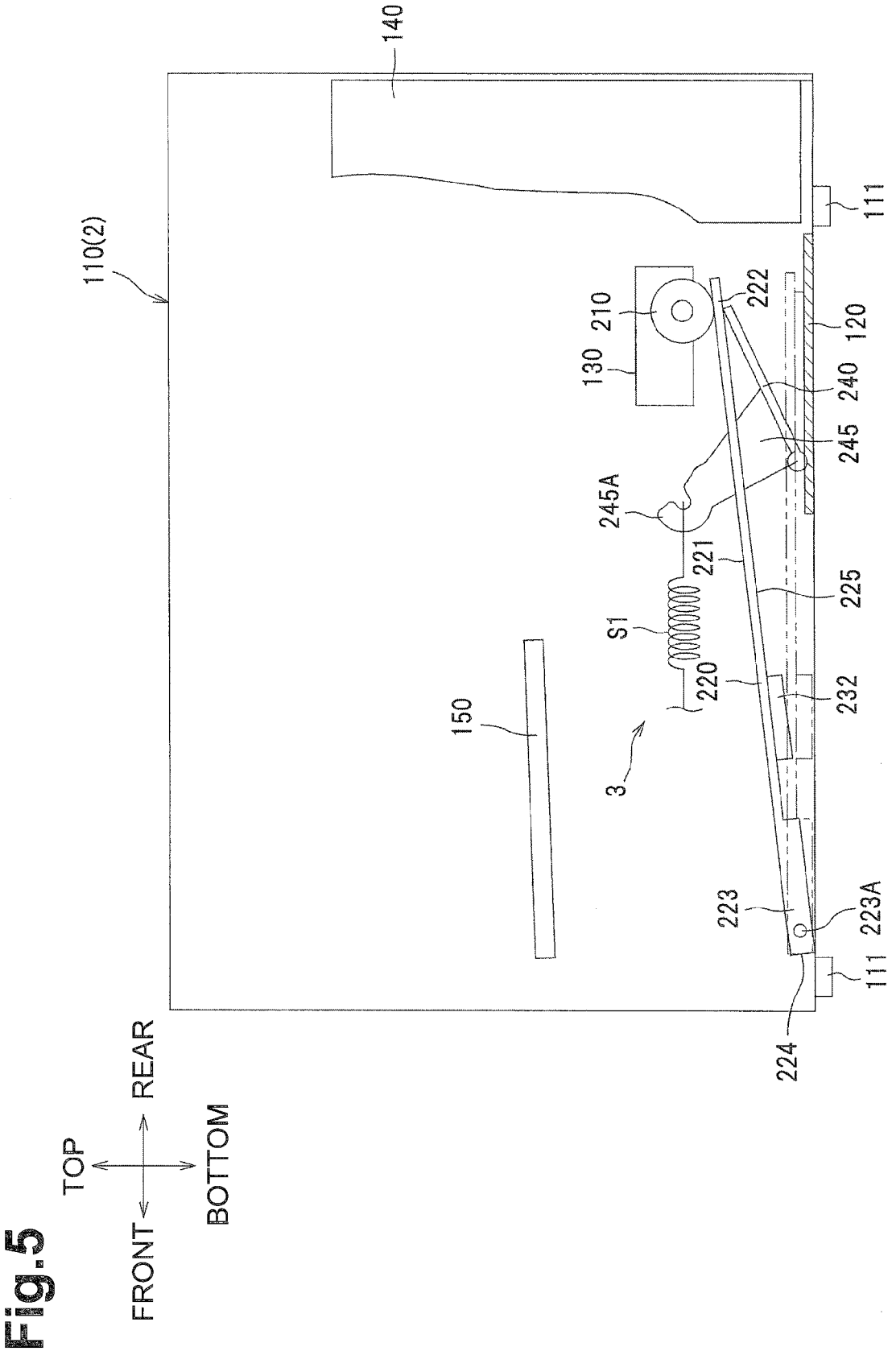
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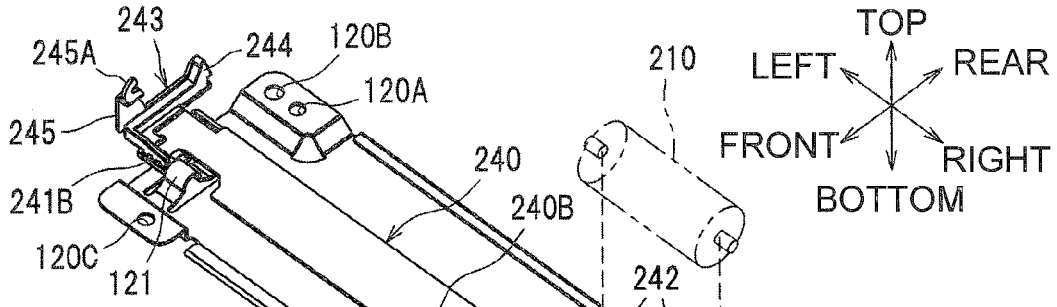
Fig.5

Fig.6A



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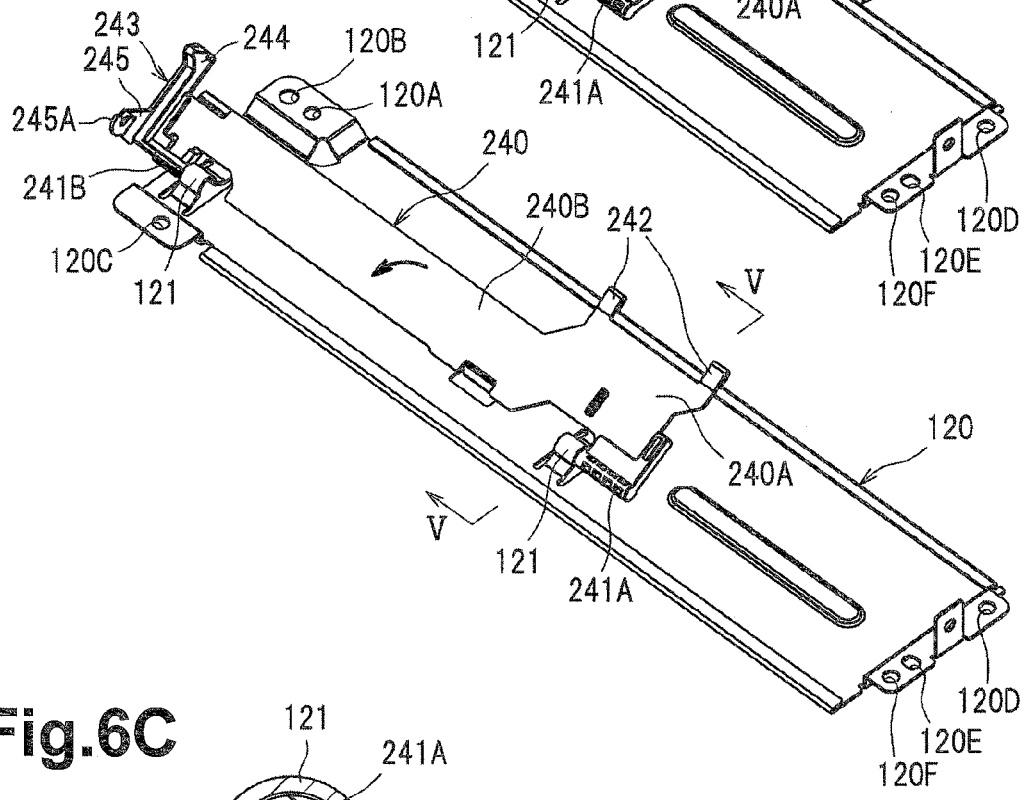

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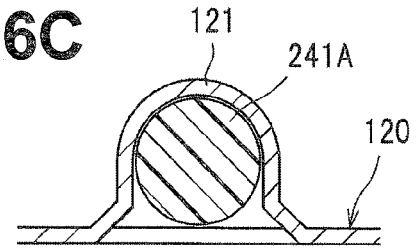
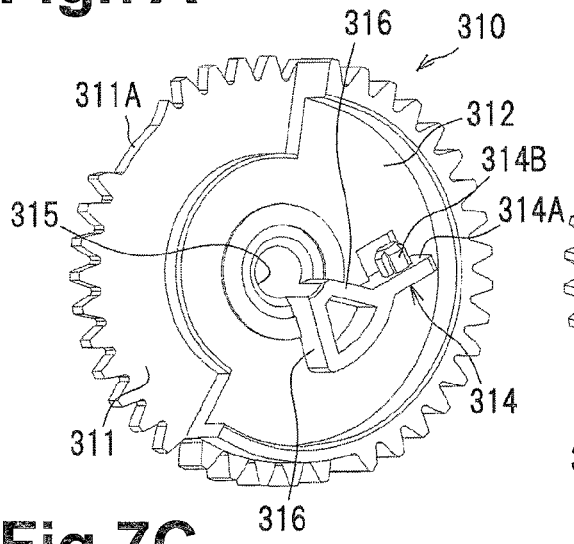


Fig.7A



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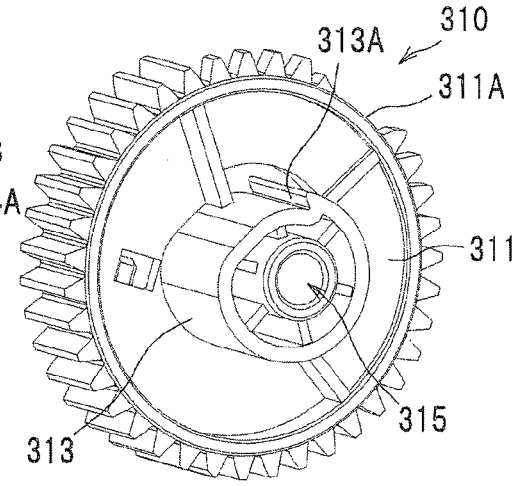
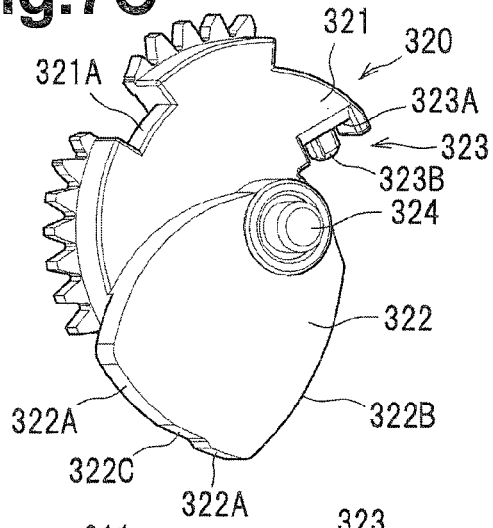


Fig.7C



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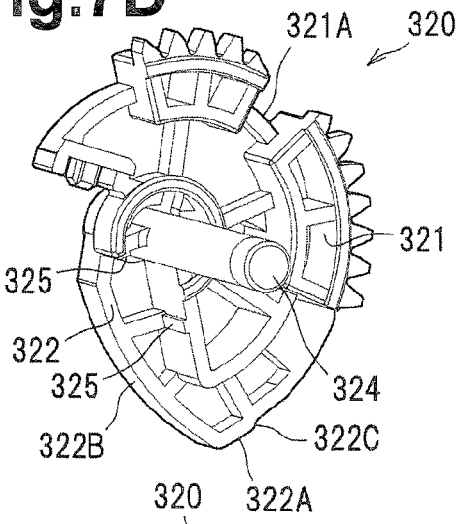

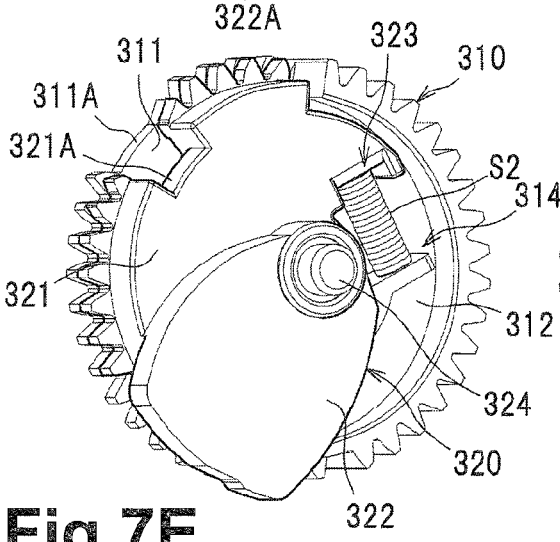

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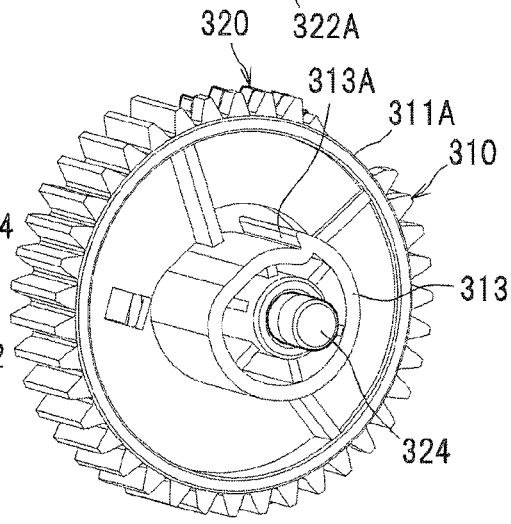


Fig.7F

Fig.8A

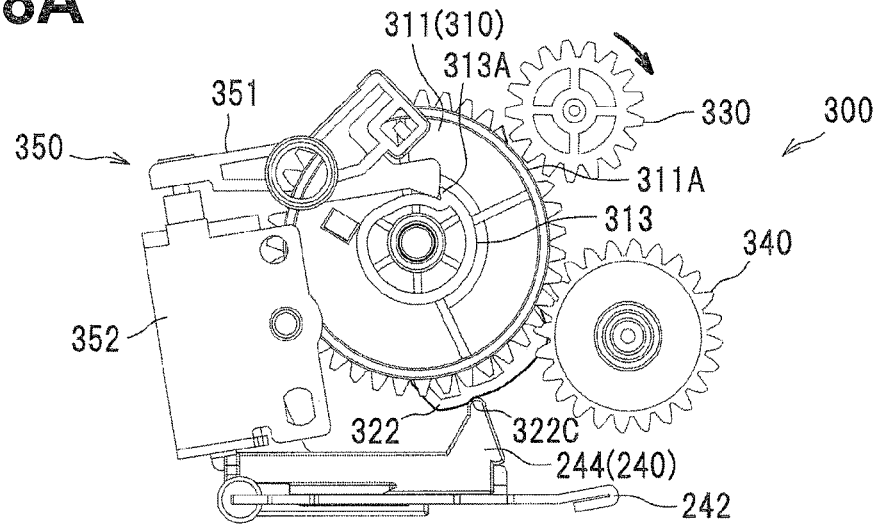


Fig.8B

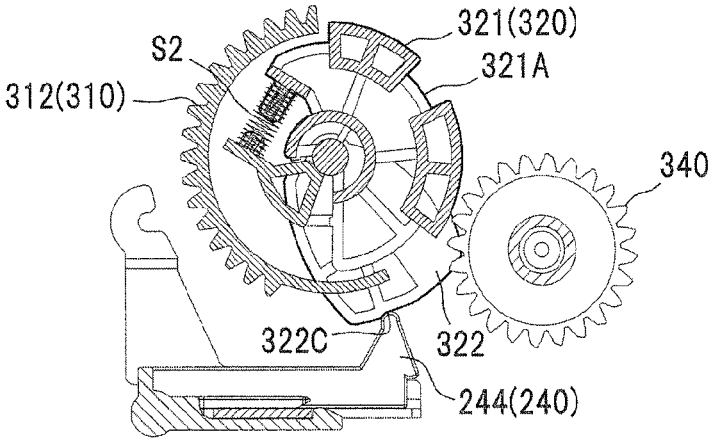


Fig.8C

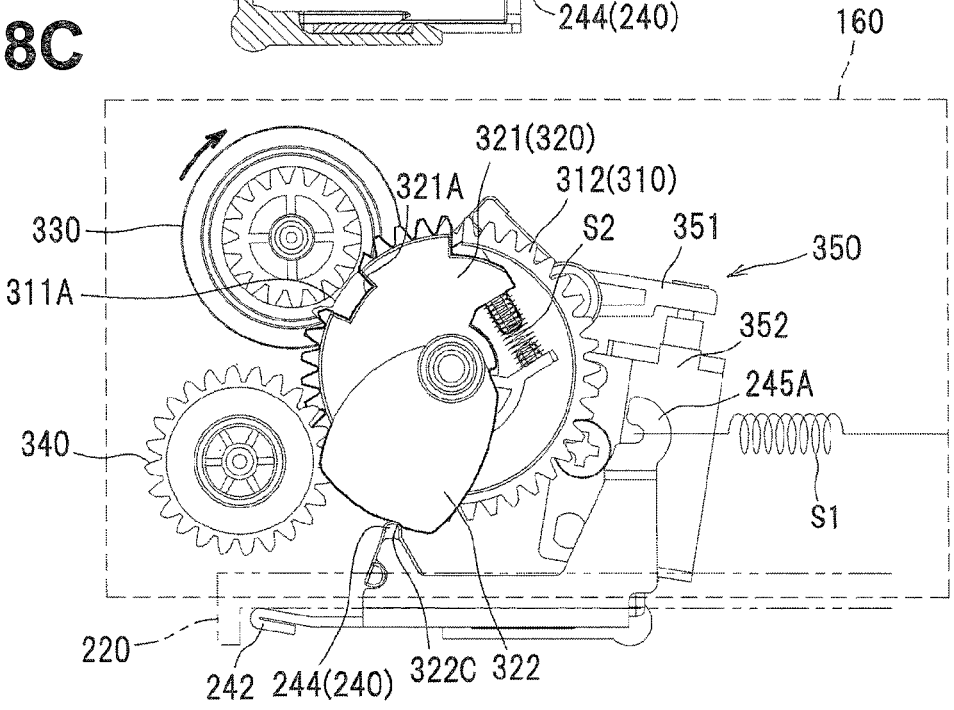
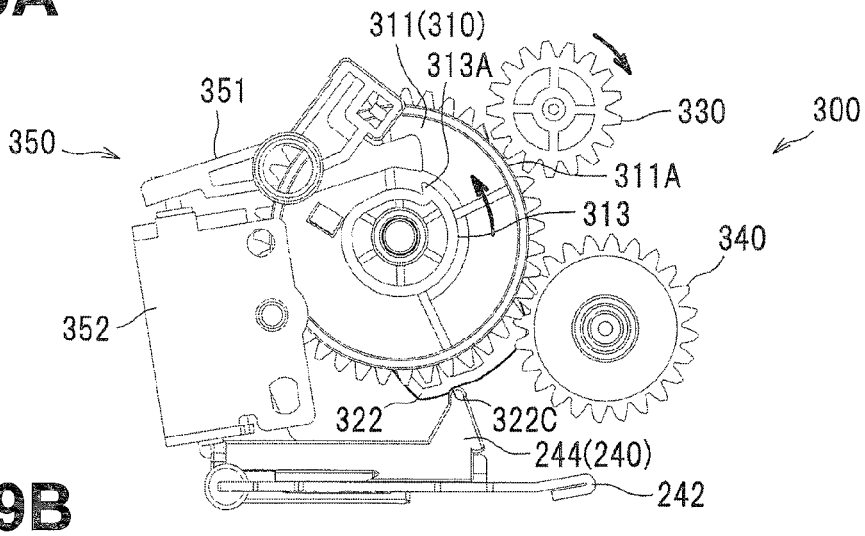


Fig.9A



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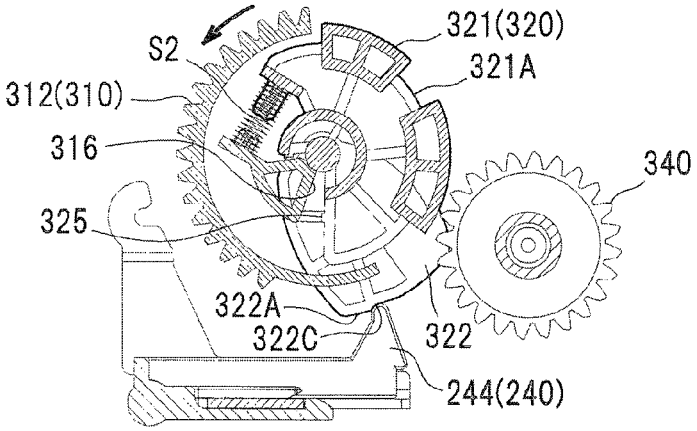


Fig.9C

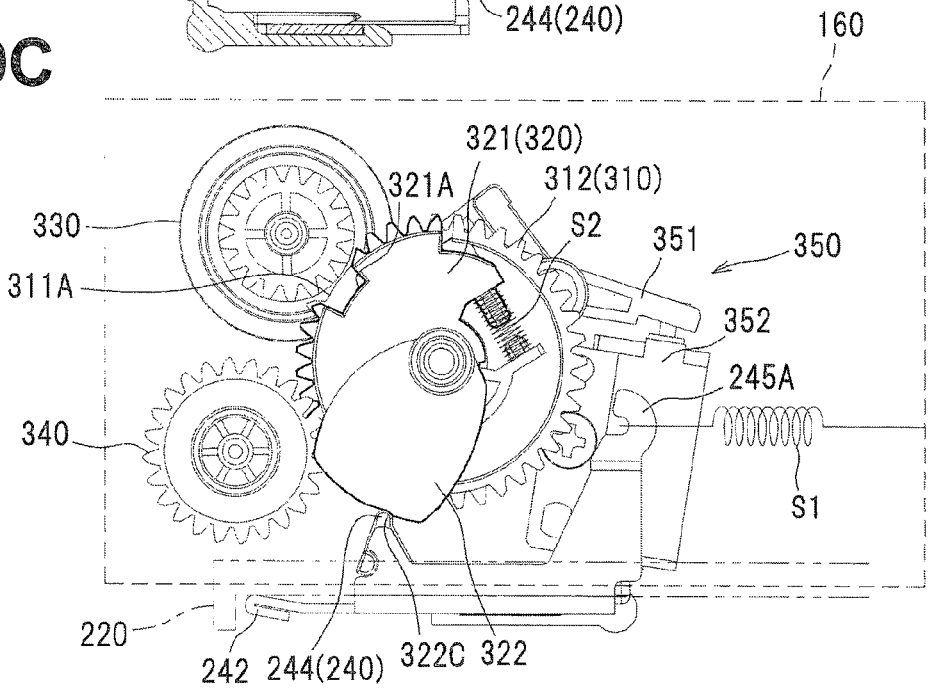


Fig.10A

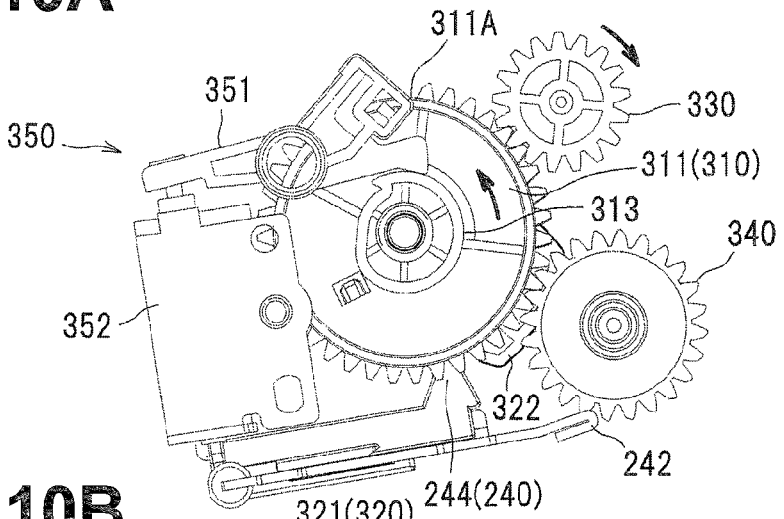


Fig.10B

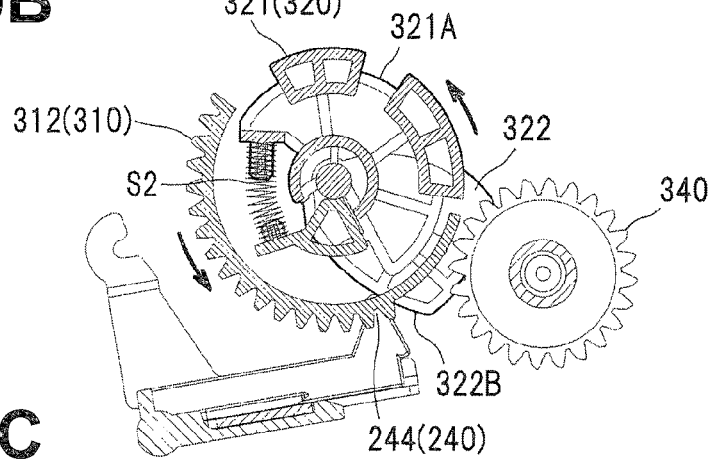


Fig.10C

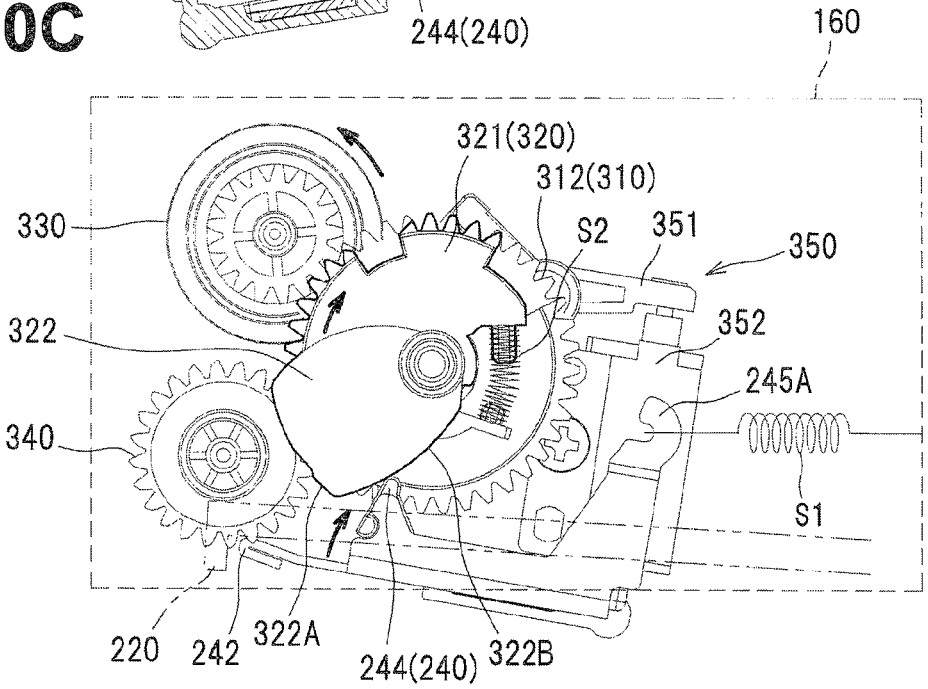
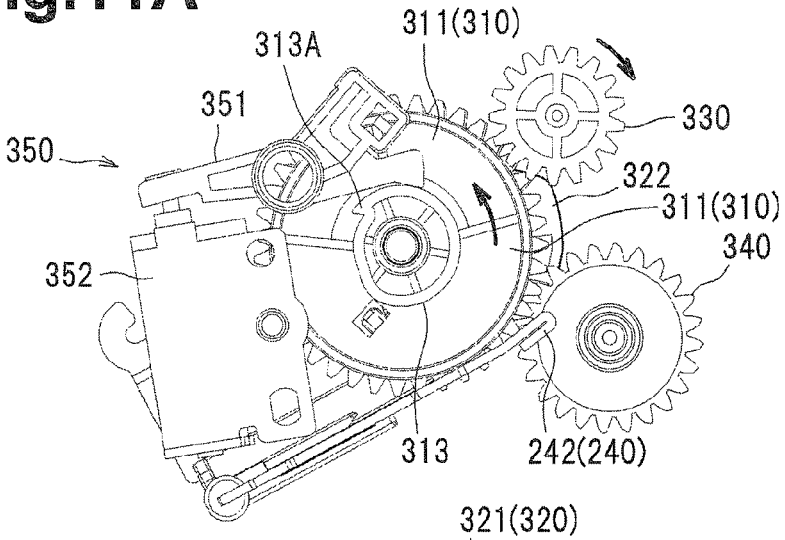


Fig.11A



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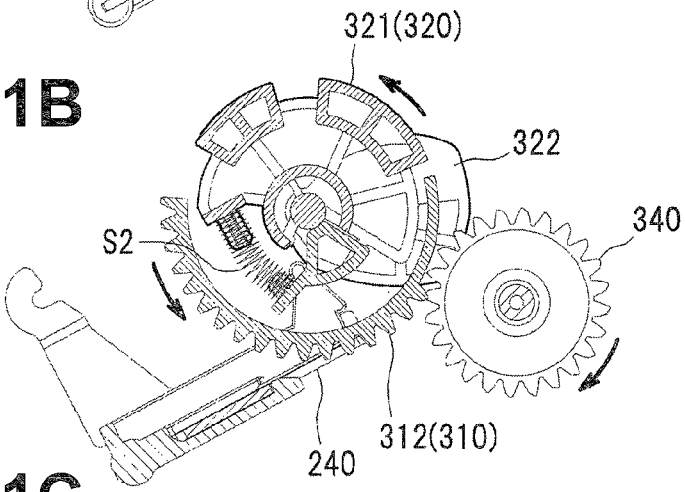

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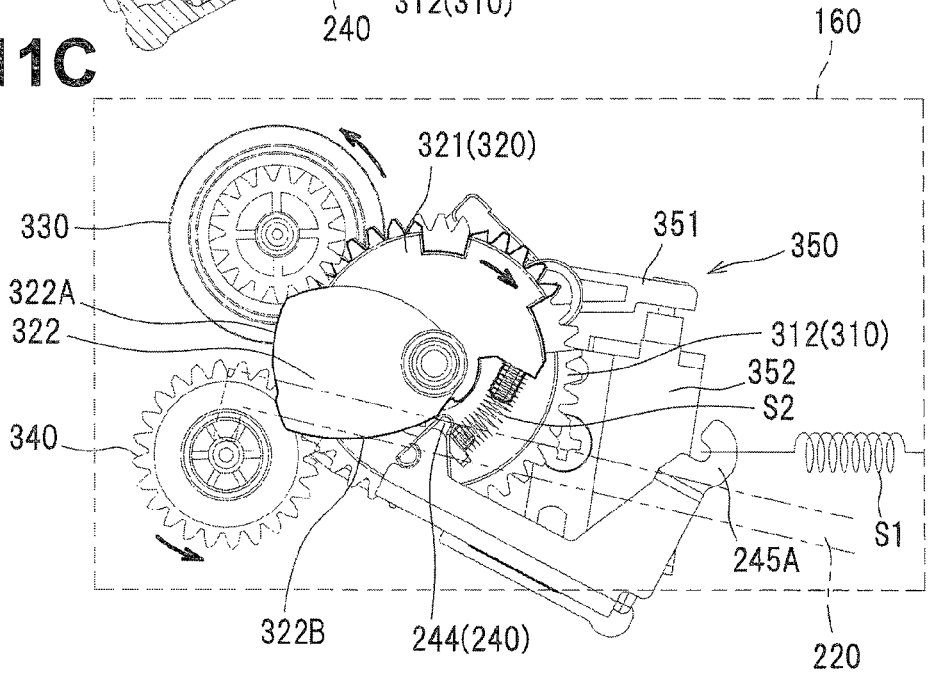


Fig.12A

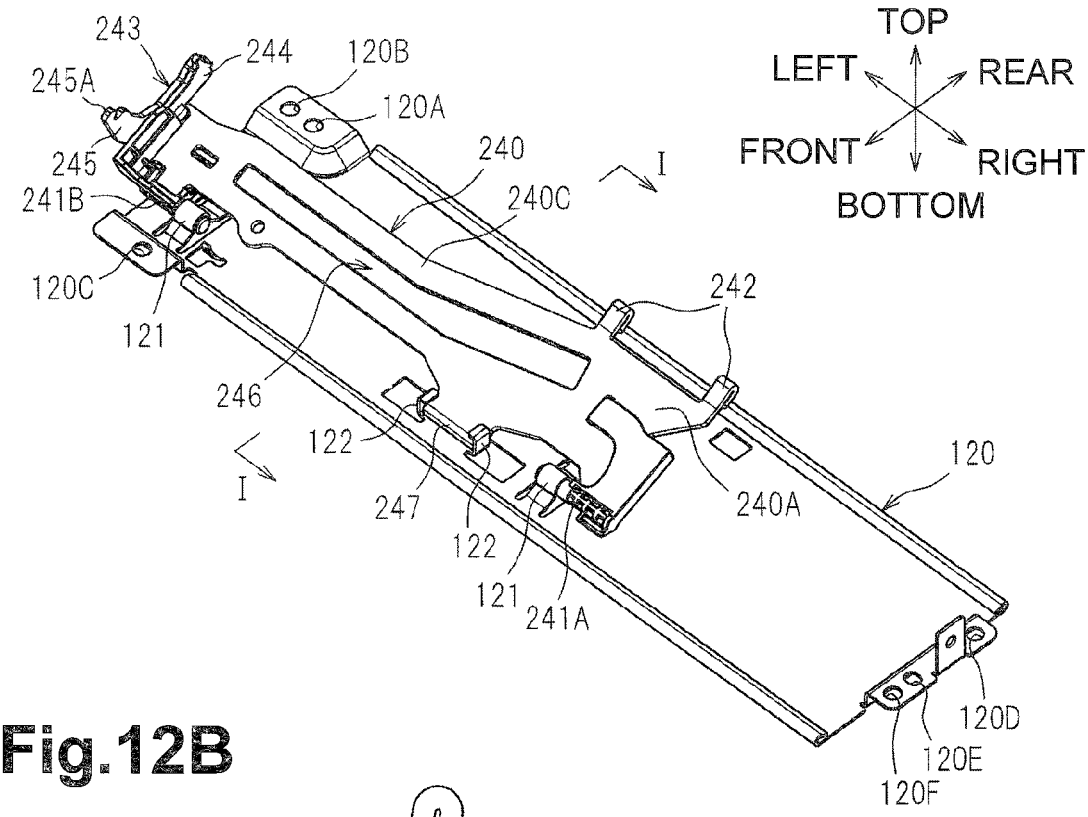


Fig.12B

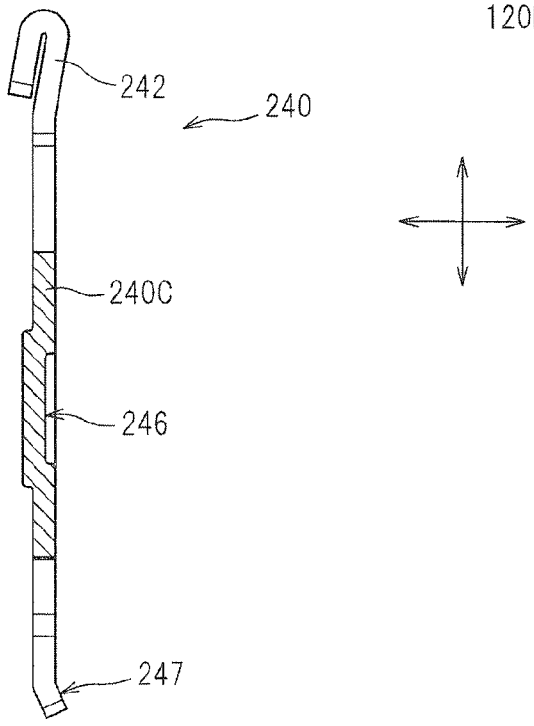


Fig.13

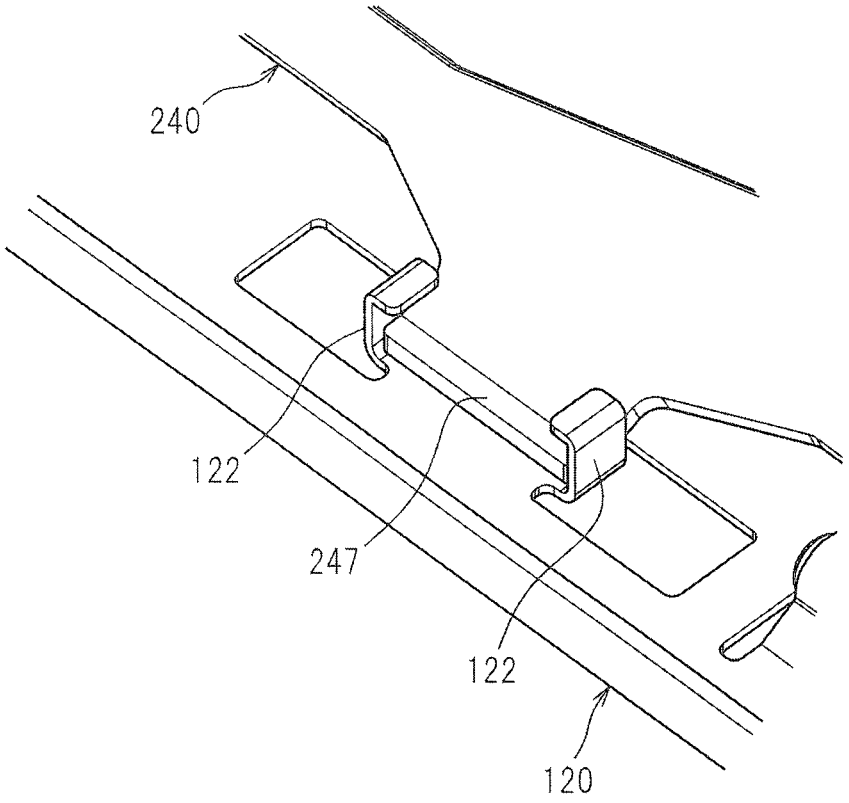
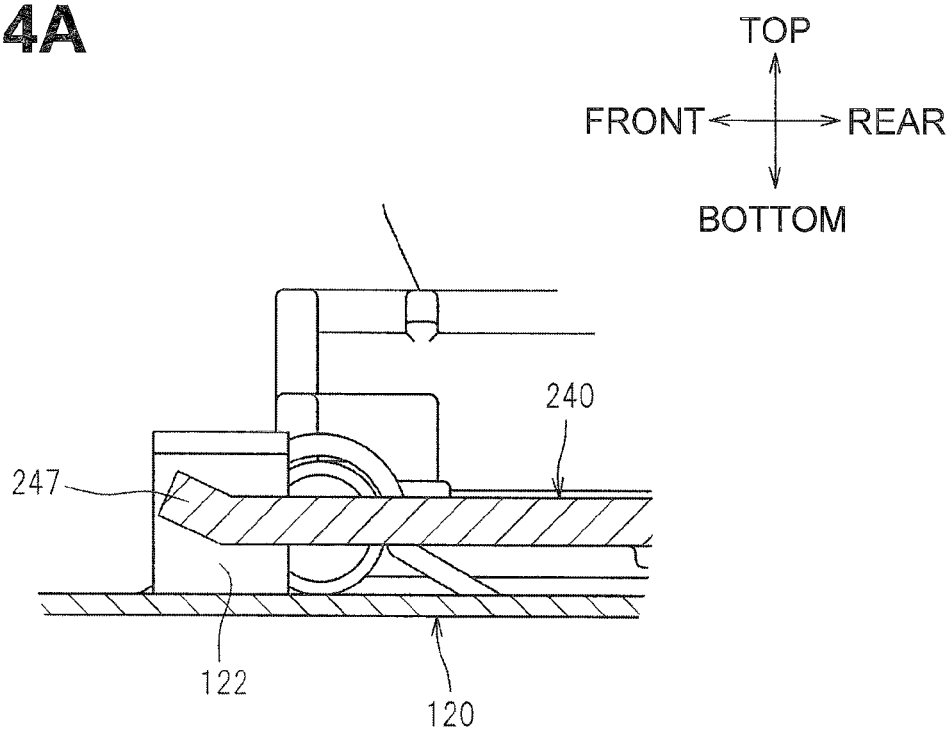


Fig.14A



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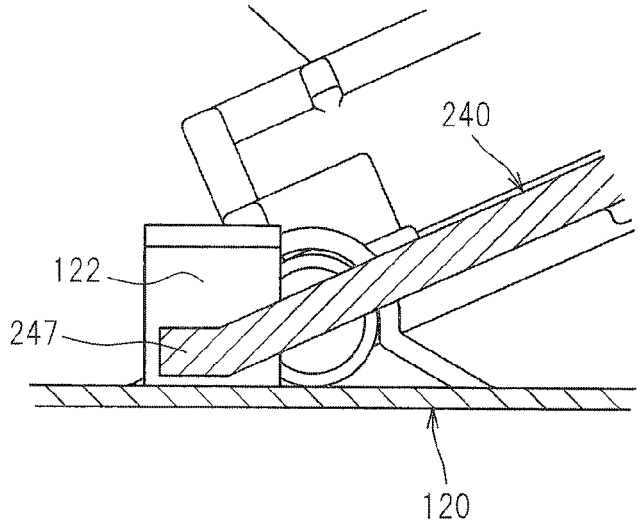

IMAGE FORMING APPARATUS

CROSS REFERENCE TO RELATED APPLICATION

This application claims priority from Japanese Patent Application Nos. 2012-080575 filed on Mar. 30, 2012, and 2012-226810 filed on Oct. 12, 2012, which are incorporated herein by reference in their entireties.

FIELD

Aspects of the disclosure relate to an image forming apparatus including a sheet supply roller and a sheet receiving plate configured to receive a recording sheet thereon and raise the recording sheet toward the sheet supply roller.

BACKGROUND

A known image forming apparatus, which is configured to form an image on a recording sheet to be fed, includes a sheet supply roller, and a sheet receiving plate configured to receive the recording sheet thereon and raise the recording sheet toward the sheet supply roller from below. In this image forming apparatus, a first end portion of the sheet receiving plate is disposed under the sheet supply roller and a second end portion thereof is rotatably supported by a main body of the image forming apparatus such that the first end portion is vertically movable. A spring is disposed under the first end portion of the sheet receiving plate to urge the first end portion upward. The main body includes cams configured to contact opposite ends of the sheet receiving plate in a width direction of the recording sheet and regulate upward movement of the sheet receiving plate against an urging force of the spring. The first end portion of the sheet receiving plate moves vertically along with rotation of the cams.

SUMMARY

However, when the first end portion of the sheet receiving plate is located in the lowest position, the spring is under compression in the above art. As the spring has a certain degrees of height even if it is under compression, the physical size of the main body has been increased accordingly.

Illustrative aspects of the disclosure provide an image forming apparatus making a main body of the image forming apparatus compact.

According to an aspect of the disclosure, an image forming apparatus includes an image forming portion configured to form an image on a recording sheet, a main body including a pair of frames and a bridging member connecting the pair of frames, a feed roller, a sheet receiving plate, and a lifting member. The sheet receiving plate is configured to receive the recording sheet, and pivot between a nearby position where the sheet receiving plate is disposed near the feed roller and a remote position where the sheet receiving plate is disposed remote from the feed roller. The lifting member is disposed opposite to the feed roller relative to the sheet receiving plate and configured to lift the sheet receiving plate such that the sheet receiving plate is disposed in the nearby position. The lifting member includes a pivot shaft rotatably supported by the bridging member and a lift portion configured to contact the sheet receiving plate.

BRIEF DESCRIPTION OF THE DRAWINGS

Illustrative aspects will be described in detail with reference to the following figures in which like elements are labeled with like numbers and in which:

FIG. **1** illustrates a general structure of an illustrative image forming apparatus, e.g. a laser printer, according to an embodiment of the disclosure;

FIG. **2** is a perspective view illustrating a pair of side frames and a bridging member;

FIG. **3** is a perspective view illustrating a main body and a sheet receiving plate;

FIG. **4** is a perspective view of the main body and the sheet receiving plate as viewed from below;

FIG. **5** schematically illustrates the main body and a feeder portion;

FIGS. **6**A, **6**B, and **6**C illustrate the bridging member and a lifting member, wherein FIG. **6**A is a perspective view illustrating the lifting member in a second position, FIG. **6**B is a perspective view illustrating the lifting member in a first position, and FIG. **6**C is a sectional view taken along a line V-V illustrating a rotational shaft and a support portion;

FIG. **7**A is a perspective view of a first gear;

FIG. **7**B is a perspective view of an opposite side of the first gear from that shown in FIG. **7**A;

FIG. **7**C is a perspective view of a second gear;

FIG. **7**D is a perspective view of an opposite side of the second gear from that shown in FIG. **7**C;

FIG. **7**E is a perspective view of the first gear and the second gear;

FIG. **7**F is a perspective view of an opposite side of the first gear and the second gear from that shown in FIG. **7**E;

FIGS. **8**A and **8**B illustrate the feeder portion during standby;

FIG. **8**C illustrates the feeder portion viewed from an opposite side thereof shown in FIG. **8**A;

FIGS. **9**A and **9**B illustrate the feeder portion during operation of a solenoid;

FIG. **9**C illustrates the feeder portion viewed from an opposite side thereof shown in FIG. **9**A;

FIGS. **10**A and **10**B illustrate the feeder portion when the sheet receiving plate starts to move upward;

FIG. **10**C illustrates the feeder portion viewed from an opposite side thereof shown in FIG. **10**A;

FIGS. **11**A and **11**B illustrate the feeder portion when a feed roller starts to rotate;

FIG. **11**C illustrates the feeder portion viewed from an opposite side thereof shown in FIG. **11**A;

FIG. **12**A is a perspective view illustrating a bridging member and a lifting member according to a modification of the disclosure;

FIG. **12**B is a sectional view taken along a line I-I of FIG. **12**A;

FIG. **13** is a perspective view illustrating a rotation restricting portion of the lifting member according to the modification of the disclosure;

FIG. **14**A is a sectional view of the rotation restricting portion when located in a second position; and

FIG. **14**B is a sectional view of the rotation restricting portion when located in a first position.

DETAILED DESCRIPTION

A first illustrative embodiment will be described in detail with reference to the accompanying drawings. In the following description, a general structure of a laser printer as an example of an image forming apparatus will be described and then features of the disclosure will be described in detail.

In the following description, orientations or sides of the laser printer will be identified based on the laser printer disposed in an orientation in which it is intended to be used. In other words, in FIG. **1**, the left side is referred to as the front

or front side, the right side is referred to as the rear or the rear side, the up side is referred to as the top or upper side, and the down side is referred to as the bottom or lower side. The top-bottom direction may be referred to as a vertical direction.

As shown in FIG. **1**, the laser printer **1** includes a main body **2**, a feeder portion **3** for feeding a sheet P as an example of a recording sheet, and an image forming portion **4** for forming an image on the sheet P.

The main body **2** includes a casing **100**, a top cover **22**, and a front cover **23**. The casing **100** has an opening **21**A for attaching and removing a process cartridge **6** in an upper portion, and an insertion opening **21**B for inserting sheets P in a front portion.

The top cover **22** is configured to pivot upward about a pivot **22**A of the top cover **22** disposed in an upper rear portion of the main body **2**. The top cover **22** covers from a rear end portion of the main body **2** to a front end portion thereof, and pivots upward such that an upper side of the main body **2** is released.

The front cover **23** is configured to pivot frontward about a pivot **23**A of the front cover **23** disposed in a lower front portion of the main body **2**. The front cover **23** covers from a lower end portion of the main body **2** to an upper end portion thereof, and pivots frontward such that a front side of the main body **2** is released. In FIG. **1**, the front cover **23** closing the front side of the main body **2** is indicated by a double dotted line, and the front cover **23** releasing the front side of the main body **2** is indicated by a solid line.

In other words, the opening **21**A in the upper portion of the casing **100** is opened and closed by the top cover **22**, and the insertion opening **21**B in the front portion is opened and closed by the front cover **23**.

The feeder portion **3** is disposed in a lower portion of the main body **2**, and includes a sheet tray **31** for placing a sheet P thereon and a sheet feed mechanism **32** that feeds a sheet P on the sheet tray **31** toward the image forming portion **4**.

The sheet tray **31** includes the front cover **23** and a sheet receiving plate **220**, as an example of a recording sheet receiving portion, which is disposed in a lower portion of the main body **2**. Specifically, when tilted frontward, the front cover **23** constitutes a part of the sheet tray **31**. The sheet receiving plate **220** is configured to raise a sheet P received thereon toward a feed roller **210** in time with feeding of a sheet P.

The sheet feed mechanism **32** includes the feed roller **210**, a separation roller **32**A, and a separation pad **32**B. The feed roller **210** is disposed upstream of the separation roller **32**A in a sheet conveying direction, and above the rear end of the sheet receiving plate **220**. The separation roller **32**A is disposed facing the separation pad **32**B.

The feed roller **210** and the separation roller **32**A constitute one part as a feed roller unit **32**C. The feed roller unit **32**C includes the feed roller **210**, the separation roller **32**A, and an idle gear **32**D. The idle gear **32**D engages a gear (not shown) that rotates together with the feed roller **210** and a gear (not shown) that rotates together with the separation roller **32**A. Thus, the feed roller **210** and the separation roller **32**A are configured to rotate in an interlocked manner.

In the feeder portion **3**, the front cover **23** is tilted down frontward to form the sheet tray **31**, and then a sheet P is placed on the sheet tray **31**. The feed roller **210** rotates in contact with the sheet P placed on the sheet tray **31**, and the sheet P placed on the sheet tray **31** is conveyed to the separation roller **32**A, the sheet P is singly separated from the sheet tray **31** by the separation roller **32**A and the separation pad **32**B and conveyed to the image forming portion **4**.

The image forming portion **4** includes a scanner unit **5** as an example of an exposure unit, and a process cartridge **6**, and a fixing unit **7**.

The scanner unit **5** is disposed in a front portion of the main body **2**, and includes a laser emitting portion, a polygon mirror, a lens, and a reflecting mirror, which are not shown. The scanner unit **5** irradiates a surface of a photosensitive drum **61** with a laser beam at high speed scanning.

The process cartridge **6** is located in a central portion at the rear side of the main body **2**, and disposed above the sheet feed mechanism **32**. The process cartridge **6** is detachable through the opening **21**A from the casing **100** upward and frontward. The process cartridge **6** includes a transfer roller **62** that transfers a toner image formed on the photosensitive drum **61** to a sheet P, a charger, a developing roller, a layer thickness regulating blade, and a toner chamber, which are known and not shown.

In the process cartridge **6**, the surface of the photosensitive drum **61**, which is rotating, is uniformly charged by the charger, and then exposed with the laser beam from the scanner unit **5** by high speed scanning. Thus, a potential in an exposed area lowers, and an electrostatic latent image based on image data is formed on the surface of the photosensitive drum **61**.

The developing roller supplies toner in the toner chamber to the electrostatic latent image formed on the photosensitive drum **61**, and a toner image is formed on the surface of the photosensitive drum **61**. Then, when a sheet P passes between the photosensitive drum **61** and the transfer roller **62**, the toner image carried on the surface of the photosensitive drum **61** is transferred onto the sheet P.

The fixing unit **7** is disposed in an upper rear side of the main body **2**. The fixing unit **7** is located above the process cartridge **6** and includes a heat roller **71** and a pressure roller **72**.

The heat roller **71** is a member that applies heat to a sheet P, and includes a heat source, e.g., a halogen lamp, which is not shown, inside.

The pressure roller **72** is a member that feeds a sheet P by sandwiching the sheet P with the heat roller **71**, and is disposed diagonally upward from the rear side of the heat roller **71**.

The fixing unit **7** structured as described above is configured to fix toner transferred onto the sheet P thermally while the sheet P passes between the heat roller **71** and the pressure roller **72**. The sheet P having the toner thermally fixed thereon is conveyed to an ejection roller **8**, which is disposed downstream of the fixing unit **7**, and ejected from the ejection roller **8** to an ejection tray **9**.

The ejection tray **9** extends diagonally upward from the rear side of the main body **2** to the front side, and is provided as a part of the top cover **22**. An extension tray **10** is disposed frontward of the top cover **22** and at a front end portion of the ejection tray **9**. The extension tray **10** has a pivot axis in the vicinity of the front end portion of the ejection tray **9**, and is configured to pivot between a position facing the extension tray **9**, which is indicated by a chain double-dashed line, and a position indicated by a solid line. When no image is formed, the extension tray **10** is folded to the position indicated by the chain double-dashed line to cover the ejection tray **9**. When an image is formed, the extension tray **10** is unfolded to the position indicated by the solid line to hold a leading end of a sheet P to be ejected.

The following will describe the casing **100** constituting the main body **2**.

As shown in FIG. **2**, the casing **100** includes a pair of side frames **110**, as an example of a pair of frames, and a bridging member **120**.

The pair of side frames **110** are disposed facing each other such that the image forming portion **4** is sandwiched therebetween in the left-right direction or a width direction. As shown in FIG. **4**, a bottom surface of each of the side frames **110** has two legs **111** protruding downward and located at the front and rear portions of the bottom surface respectively.

As shown in FIG. **2**, the bridging member **120** is a flat plate-like member formed of sheet metal. The bridging member **120** is fixed to the side frames **110** such that it connects the bottom surfaces of the side frames **110**. More specifically, the bridging member **120** connects rear end portions of the side frames **110**. Specifically, as shown in FIG. **4**, the bridging member **120** has a length smaller than that of the side frames **110** in the front-rear direction, and constitutes some of a rear end portion of the bottom surface of the main body **2**. A rear end portion of the bridging member **120** is located frontward of the rear end portions of the side frames **110**. A front end portion of the bridging member **120** is located near a central portion of the side frames **110** in the front-rear direction.

As shown in FIGS. **6**A and **6**B, the bridging member **120** has holes **120**A, **120**B, and **120**C formed therethrough vertically on the left side. The holes **120**A and **120**B are provided side by side in the rear end portion of the bridging member **120**, and the hole **120**C is disposed in the front end portion of the bridging member **120**.

The bridging member **120** has holes **120**D, **120**E, and **120**F formed therethrough vertically on the right side. The hole **120**D is disposed in the rear end portion of the bridging member **120**, and the hole **120**F is disposed in the front end portion of the bridging member **120**. The hole **120**E is disposed closer to the hole **120**F than the hole **120**D between the hole **120**D and the hole **120**F.

Two screws, not shown, pass through the respective holes **120**A and **120**C and are engaged in screw holes, not shown, provided in the left side frame **110** such that the left end portion of the bridging member **120** is fixed to the left side frame **110**. Two screws, not shown, pass through the respective holes **120**D and **120**F and are engaged in screw holes, not shown, provided in the right side frame **110** such that the right end portion of the bridging member **120** is fixed to the right side frame **110**.

The holes **120**B and **120**E are used for positioning. The hole **120**B receives an unnumbered boss of the left side frame **110** shown in FIG. **4**. The hole **120**B is a circular hole having a size substantially equal to that of the boss to be inserted therein. The hole **120**E receives an unnumbered boss of the right side frame **110** shown in FIG. **4**. The hole **120**E is a long hole extending toward a center of the hole **120**B, and is intended to engage a boss to be inserted therein and prevent the bridging member **120** from rotating about the boss inserted into the hole **120**B.

The bridging member **120** includes support portions **121** for supporting a pivot shaft **241**A and a pivot shaft **241**B of a lifting member **240**. The support portions **121** are disposed in a substantially central portion and a left end portion in the left-right direction. The support portions **121** are formed by cutting and raising a part of the bridging member **120**.

As shown in FIG. **3**, the casing **100** further includes a holding frame **130**, a rear chute **140** as an example of a guiding member, and a scanner unit holding member **150** as an example of an exposure unit holding member, which are disposed above the bridging member **120**.

The holding frame **130** is a member that rotatably supports the feed roller **210** which is omitted from FIG. **3**. The holding frame **130** is disposed in an upper portion of the bridging member **120** and fixed to the pair of side frames **110** such that it connects the pair of side frames **110**.

The rear chute **140** is fixed to the pair of side frames **110** such that it connects the rear end portions of the side frames **110**. The rear chute **140** is disposed extending from lower portions of the rear ends of the side frames **110** to upper portions thereof. The rear chute **140** has a guide surface **140**A on its inner surface. The guide surface **140**A is for guiding a sheet P to be supplied from the feeder portion **3** by the feed roller **210** toward the image forming unit **4**.

The scanner unit holding member **150** is configured to hold the scanner unit **5**. The scanner unit holding member **150** is made of sheet metal, and configured to fix the scanner unit **5** on an upper surface thereof. The scanner unit holding member **150** is disposed to connect some of front end portions of the side frames **110** or the other end portion. Specifically, the scanner unit holding member **150** is fixed to the side frames **110** above the front portion of the sheet receiving plate **220**. More specifically, the front end portion of the scanner unit holding member **150** is located slightly behind the front end portions of the side frames **110**, and the rear end portion of the scanner unit holding member **150** is located near a central portion of each of the side frames **110** in the front-rear direction.

The scanner unit holding member **150** has holes **150**A, **150**B, **150**C, **150**D, **150**E, **150**F, **150**G, and **150**H which are formed therethrough vertically. The holes **150**A and **150**E are used for positioning, and receive respective unnumbered bosses of the scanner unit **5**. The hole **150**A is disposed at a position which is slightly left from a central portion of the scanner unit holding member **150** and near the rear end portion of the scanner unit holding member **150**. The hole **150**A is a circular hole having a size substantially equal to that of a boss to be inserted therein. The hole **150**E is a long hole extending toward a center of the hole **150**A and receives a boss therein to prevent the scanner unit **5** from rotating about the boss inserted into the hole **150**A.

The holes **150**B, **150**C, and **150**D are disposed on a front side of a central portion of the scanner unit holding member **150**. The holes **150**B, **150**C, and **150**D receive respective bosses (not shown) of the scanner unit **5**. The holes **150**B, **150**C, and **150**D have a size slightly greater than that of the bosses of the scanner unit **5** such as to be capable of receiving the bosses loosely.

The hole **150**H is disposed in front of the positioning hole **150**A. The hole **150**F is disposed in front of the positioning hole **150**E. The hole **150**G is disposed at a position which is slightly right from the central portion of the scanner unit holding member **150** and near the front end portion of the scanner unit holding member **150**. Three screws, not shown, pass through the respective holes **150**F, **150**G and **150**H, and are engaged in screw holes, not shown, in the scanner unit **5** such that the scanner unit **5** is fixed to the scanner unit holding member **150**.

The following will describe the detailed structure of the feeder portion **3**.

The feeder portion **3** includes the feed roller **210** and the sheet receiving plate **220**, which are shown in FIG. **5**, a pair of guide members **230**, which is shown in FIGS. **1** and **3**, for adjusting a position of a sheet P received on the sheet receiving plate **220** in the width direction, a lifting member **240** for moving the sheet receiving plate **220** vertically, a tension spring S**1**, and a drive mechanism **300** shown in FIG. **8**A.

The feed roller **210** is rotatably supported by the holding frame **130** at the rear end portion of the main body **2**. The feed

roller **210** is configured to receive a driving force from a third gear **340** of the drive mechanism **300** to rotate.

The feed roller **210** is disposed facing a central portion of the sheet receiving plate **220** in the left-right direction.

The sheet receiving plate **220** is a plate-like member on which a sheet P is to be placed. The sheet receiving plate **220** is made of resin which is more lightweight and has a higher degree of flexibility in design compared with sheet metal.

The sheet receiving plate **220** is configured to raise the sheet P received on an upper surface **221**, which is a sheet receiving surface, toward the feed roller **210**. Specifically, the sheet receiving plate **220** is disposed such that its rear end portion **222**, as an example of a first end portion, is located under the feed roller **210**, and a rotation shaft **223**A located in the vicinity of a front end portion **223**, as an example of a second end portion, is rotatably supported by the side frames **110**. With this structure, the sheet receiving plate **220** is movable between a nearby position, indicated by a solid line in FIG. **5**, where the rear end portion **222** moves toward the feed roller **210** and a remote position, indicated by a double dotted line in FIG. **5**, where the rear end portion **222** moves away from the feed roller **210**. In the remote position, the sheet P received on the sheet receiving plate **220** does not contact the feed roller **210**. However, when the sheet receiving plate **220** moves toward the nearby position, the sheet P contacts the feed roller **210** and the sheet P is conveyed under rotation of the feed roller **210**.

The front end portion **223** of the sheet receiving portion **220** is located in the vicinity of the front end portions of the side frames **110** and exposed to a bottom surface of the main body **2**. The rear end portion **222** of the sheet receiving portion **220** is located in the vicinity of the rear end portions of the side frames **110**, and more specifically in a position facing the feed roller **210**.

The sheet receiving plate **220** is disposed such that, when the rear end portion **222** of the sheet receiving plate **220** is located at the highest position or the sheet receiving plate **220** is in the nearby position, an edge **224** of the front end portion **223** overlaps the bridging member **120** as viewed along a surface of the bridging member **120**. More specifically, the sheet receiving plate **220** is disposed such that the edge **224** of the front end portion **223** of the sheet receiving plate **220** and the bridging member **120** overlap each other in the horizontal direction.

Thus, this disposition can make efficient use of a space provided in a bottom front portion of the main body **2** by disposing the bridging member **120** only in a part of the rear end portion of the main body **2**. More specifically, when the sheet receiving plate **220** is disposed in the nearby position, the edge **224** of the front end portion **223** of the sheet receiving plate **220** is in the lower position. The edge **224** is allowed to enter the space provided in the bottom front portion of the main body **2**, thereby the space can be used effectively, and the main body **2** can be made compact in height.

The sheet receiving plate **220** is disposed such that the rear end portion **222** is located above the bridging member **120**. In other words, the bridging member **120** is disposed such as to cover the rear portion of the sheet receiving plate **220** on the bottom surface of the main body **2**. For example, if the bridging member **120** would be disposed at the rear of the sheet receiving plate **220** with a gap provided between the rear end of the sheet receiving plate **220** and the front end of the bridging member **120**, a sheet P received on the sheet receiving plate **220** would pass through the gap. As this embodiment does not provide such a gap, the sheet P received on the sheet receiving plate **220** does not slip off the sheet receiving plate **220**.

As shown in FIGS. **1** and **3**, the guide members **230** are disposed in the left and right end portions of the sheet receiving plate **220** respectively. The guide members **230** include guide plates **231** and rack gear portions **232** (FIG. **4**).

The guide plates **231** extend upward from the left and right ends of the sheet receiving plate **220** and are elongated in the front-rear direction. The guide plates **231** are configured to adjust the position of a sheet P, in a width direction, received on the upper surface **221** of the sheet receiving plate **220**, by contacting both ends of the sheet P in the width direction.

The rack gear portions **232** are routed from the lower portions of the guide plates **231**, through holes (shown without numerals) formed in the sheet receiving plate **220**, to a lower surface **225** of the sheet receiving plate **220** opposite to the upper surface **221**, and extend inward in the left-right direction from the left and right ends as shown in FIG. **4**. The rack gear portions **232** each have gear teeth formed in a portion where the rack gear portions **232** face each other, and engage a pinion gear **233** located between the rack gear portions **232**.

With this structure, as one of the guide members **230** is moved in the width direction in accordance with the size of a sheet P, the other one of the guide members **230** is moved in the width direction in an interlocked manner.

The rack gear portions **232** and the pinion gear **233** are disposed in positions where they do not overlap the bridging member **120** vertically or positions where they overlap the bridging member **120** horizontally. In other words, the bridging member **120** is disposed such that the pair of guide members **230**, including the rack gear portions **232** and the pinion gear **233**, are exposed to the bottom surface of the main body **2**. More specifically, as shown in FIG. **5**, the space is provided in the front bottom portion of the main body **2** as described above by disposing the bridging member **120** in only a part of the rear end portion of the main body **2**. Thus, the space is effectively used by disposing the rack gear portions **232** and the pinion gear **233** in the space.

Thus, as the bridging member **120**, the rack gear portions **232** and the pinion gear **233** do not overlap each other vertically, the need to increase the size of the main body **2** vertically can be obviated.

The lifting member **240** is disposed under the rear end portion **222** of the sheet receiving plate **220** or on an opposite side of the upper surface **221**. The lifting member **240** is configured to move between a first position (indicated by a solid line) where the sheet receiving plate **220** is lifted and located in the nearby position and a second position (indicated by a double dotted line) where the sheet receiving plate **220** is located in the remote position.

Specifically, as shown in FIGS. **6**A and **6**B, the lifting member **240** is a plate-like member that is rotatably supported by the bridging member **120**. The lifting member **240** is made of sheet metal and extends from the left end portion of the bridging member **120** to substantially a central portion thereof.

The lifting member **240** includes a connecting portion **240**A and a main portion **240**B. The connecting portion **240**A is disposed in a central portion of the bridging member **120** and has substantially a trapezoidal shape. The main portion **240**B extends leftward from the connecting portion **240**A or toward the left side frame **110** of the pair of side frames **110**. The connecting portion **240**A and the main portion **240**B are integrally made of sheet metal.

The connecting portion **240**A includes the pivot shaft **241**A at the front end thereof, and lift portions **242** disposed at the rear end thereof. The lift portions **242** contact the sheet receiving plate **220**. The connecting portion **240**A connects the

pivot shaft **241**A and the lift portions **242**. The main portion **240**B includes, at the left end portion thereof, a pivot shaft **241**B and an operation portion **243** that contacts a second cam **322** of the drive mechanism **300**. The main portion **240**B connects the connecting portion **240**A and the operation portion **243**. The main portion **240**B is narrower than the connecting portion **240**A and is substantially uniform in size from an end portion proximate to the connecting portion **240**A to an opposite end portion.

The lifting member **240** is configured to pivot about the pivot shafts **241**A and **241**B such that the lift portions **242** are vertically rotatable.

As shown in FIG. **6**C, the pivot shafts **241**A and **241**B have a circular cross section. The pivot shafts **241**A and **241**B are rotatably supported by the respective support portions **121** of the bridging member **120**.

The pivot shafts **241**A and **241**B are made of resin, and fixed to the connecting portion **240**A and the main portion **240**B. With this structure, the pivot shafts **241**A and **241**B are constructed at low costs. It is to be desired that, to obviate the possibility that the lifting member **240** functions as an antenna and become a noise source, the pivot shafts **241**A and **241**B should be made of resin having electrical conductivity such that the bridging member **120** and the lifting member **240**, which are grounded, should be electrically continuous.

There are two lift portions **242** spaced apart from each other in the left-right direction at the rear end of the connecting portion **240**A. When in the second position, the lift portions **242** extend diagonally upward to the rear from the connecting portion **240**A of the lifting member **240**. As shown in FIG. **10**C, when the lifting member **240** moves from the second position to the first position, the lift portions **242** contact a central portion in the left-right direction of a lower surface **225** of the sheet receiving plate **220**.

The lift portions **242** are disposed in a central portion in the left-right direction of the sheet receiving plate **220** and thus in a position corresponding to the feed roller **210** in the left-right direction as shown in FIG. **6**A. More specifically, the lift portions **242** are disposed below the feed roller **210**. With this positional relationship, the lift portions **242** are configured to contact the sheet receiving portion **220** in a position overlapping the feed roller **210** in a thickness direction of the sheet receiving plate **220** or vertically.

The operation portion **243** is integrally formed with the pivot shaft **241**B. The operation portion **243** extends along a left edge of the main portion **240**B in the front-rear direction, and is disposed outside further than the sheet receiving plate **220** in the width direction of a sheet P or in the left-right direction.

The operation portion **243** includes, at a rear end portion thereof, a contact portion **244** having a shape of substantially a triangle that protrudes upward as viewed from a side. The operation portion **243** is made of resin. The operation portion **243** includes, at a front end thereof, an arm portion **245** extending upward, and the arm portion **245** includes, at a distal end thereof, a hook portion **245**A.

As shown in FIG. **8**C, the tension spring S**1** is engaged at the hook portion **245**A of the lifting member **240** at one end portion, and supported by a gear support member **160** at the other end portion. The tension spring S**1** is elongated in the front-rear direction along the upper surface **221** of the sheet receiving plate **220** located in the remote position.

The tension spring S**1** pulls the hook portion **245**A frontward. In other words, the tension spring S**1** urges the lifting member **240** from the second position shown in FIG. **6**A toward the first position shown in FIG. **6**B.

The drive mechanism **300** is a mechanism for controlling movement of the lifting member **240** between the first position and the second position and rotation of the feed roller **210**. Specifically, the drive mechanism **300** is configured to move the lifting member **240** from the second position to the first position in time with supplying of a sheet P, rotate the feed roller **210**, and then return the lifting member **240** to the second position. The drive mechanism **300** is disposed in the left end portion of the lifting member **240**, that is, in an end portion of the main portion **240**B opposite to the connecting portion **240**A.

The drive mechanism **300** includes a first gear **310** shown in FIG. **7**A, a second gear **320** shown in FIG. **7**C, and a drive gear **330**, a third gear **340** and a latch mechanism **350**, which are shown in FIG. **8**A.

As shown in FIG. **8**C, the first gear **310**, the second gear **320**, the drive gear **330**, and the third gear **340** are rotatably supported by the gear support member **160** disposed within the main body **2**.

As shown in FIGS. **7**A and **7**B, the first gear **310** includes a drive gear portion **311**, a transmission gear portion **312**, a first cam **313**, a first spring support portion **314**, and first stopper portions **316**.

The drive gear portion **311** is a circular gear having gear teeth on a peripheral surface thereof except for a missing teeth portion **311**A. The drive gear portion **311** is configured to rotate by engagement of the drive gear **330**. During standby where no sheets are supplied, or in conditions shown in FIGS. **8**A to **8**C, the missing teeth portion **311**A is disposed in a position facing the drive gear **330**.

The transmission gear portion **312** is substantially a semi-circular gear having gear teeth on about two-thirds of a peripheral surface thereof. The transmission gear portion **312** is configured to rotate in engagement with the third gear **340** to cause the third gear **340** to rotate. The transmission gear portion **312** is disposed such that the gear teeth thereof do not face the third gear **340** during standby and faces the third gear **340** after the lifting member **240** is located in the first position. The gear teeth of the transmission gear portion **312** are provided such as to rotate the third gear **340** only by the amount required for the feed roller **210** to pick up a sheet P.

The first cam **313** is of substantially a tubular shape, and has an engaging pawl **313**A radially protruding from a peripheral surface thereof. The engaging pawl **313**A is intended to prevent the first gear **310** from rotating during standby by engagement of a distal end of a latch arm **351**.

The drive gear portion **311**, the transmission gear portion **312**, and the first cam **313** are integrally formed with each other such as to rotate coaxially. Specifically, the first cam **313**, the drive gear portion **311**, and the transmission gear portion **312** are arranged in this order in an axial direction such that a center of a through hole **315** formed in the first gear **310** is a center of rotation.

The first spring support portion **314** is disposed on a side of the first gear **310** opposite the first cam **313**. The first spring support portion **314** has a first support surface **314**A extending radially from the through hole **315** and a first support protrusion **314**B protruding from the first support surface **314**A.

The first stopper portions **316** are walls radially extending from the through hole **315**, and located at two positions shifted circumferentially.

As shown in FIGS. **7**C and **7**D, the second gear **320** includes a gear portion **321**, a second cam **322**, a second spring support portion **323**, and second stopper portions **325**.

The gear portion **321** is substantially semi-circularly shaped, and has gear teeth on a circumferential surface

thereof. Specifically, the circumferential surface of the gear portion **321** has a missing gear portion **321**A having a circumferential length equal to that of the missing teeth portion **311**A of the drive gear portion **311** of the first gear **310**, and gear teeth disposed in such a manner as to sandwich the missing gear portion **321**A. The gear teeth of the gear portion **321** are provided such that they are in phase with those of the drive gear portion **311** of the first gear **310**. The gear portion **321** is disposed such that the missing teeth portion **321**A overlaps the missing teeth portion **311**A of the first gear **310** during standby.

The second cam **322** is a cam that rotates coaxially with a rotation axis of the gear portion **321**, and is disposed in a position where the second cam **322** is capable of contacting a contact portion **244** of the lifting member **240** in the axial direction. The second cam **322** has a circumferential surface comprised of a first surface **322**A, a second surface **322**B, and a recessed portion **322**C.

Specifically, the first surface **322**A is disposed in a position away from a center of rotation of the second cam **322** such as to position the lifting member **240** in the second position against an urging force of the tension spring S1 when the first surface **322**A faces the contact portion **244** of the lifting member **240**.

The second surface **322**B is a surface having a shorter distance from the center of rotation than that of the first surface **322**A, and is configured to allow the lifting member **240** to move from the second position to the first position by the urging force of the tension spring S1 when the second surface **322**B faces the contact portion **244** of the lifting member **240**.

The recessed portion **322**C is provided on the first surface **322**A. The recessed portion **322**C is shaped such that, when the recessed portion **322**C faces the contact portion **244** of the lifting member **240**, a force with which the contacting portion **244** presses the recessed portion **322**C (a cam surface) is directed toward the center of rotation of the second cam **322**.

The second cam **322** structured as described above is disposed such that the recessed portion **322**C faces the contact portion **244** of the lifting member **240** during standby.

The gear portion **321** and the second cam **322** are integrally formed such that they rotate together about a shaft portion **324** of the second gear **320** as a rotation shaft.

The second spring support portion **323** is disposed on an end surface of the gear portion **321** extending radially. The second spring support portion **323** has a second support surface **323**A extending radially and a second support protrusion **323**B protruding from the second support surface **323**A.

The second stopper portions **325** are protrusions protruding in a circumferential direction from walls extending radially from the shaft portion **324**. The second stopper portions **325** are located at two positions shifted circumferentially in such a manner as to sandwich the first stopper portions **316** of the first gear **310** when the second gear **320** is attached to the first gear **310**.

As shown in FIGS. **7**E and **7**F, the first gear **310** and the second gear **320** structured as described above are combined into one component by inserting the shaft portion **324** of the second gear **320** into the through hole **315** of the first gear **310**, and the shaft portion **324** is rotatably supported by the gear support member **160**. One of the first gear **310** and the second gear **320** is rotatable relative to the other one. One of the first gear **310** and the second gear **320** is prevented from rotating relative to the other one by engagement of the first stopper portions **316** of the first gear **310** with the second stopper portions **325** of the second gear **320**. When the first stopper portions **316** engage the second stopper portions **320**, the gear teeth of the drive gear portion **311** of the first gear **310** are in phase with the gear teeth of the gear portion **321** of the second gear **320**.

In a state where the second gear **320** is assembled to the first gear **310**, an end of the second support protrusion **323**B faces an end of the first support protrusion **314**B, and a compression spring S2 is interposed between the first spring support portion **314** and the second spring stopper portion **323**.

As shown in FIG. **8**A, the drive gear **330** is a gear that rotates upon a driving force inputted from a drive source M (FIG. **1**) disposed within the main body **2**. The drive gear **330** is disposed in such a position that the drive gear **330** is engageable with the drive gear portion **311** of the first gear **310** and the second gear **320** and does not engage the transmission gear portion **312** of the first gear **310**.

The third gear **340** is a gear that transmits a rotational driving force to the feed roller **210**. The third gear **340** is disposed in such a position that the third gear **340** is engageable with the transmission gear portion **312** of the first gear **310** and does not engage the drive gear portion **311** of the first gear **310** and the second gear **320**.

The latch mechanism **350** includes the latch arm **351** that is pivotable and a solenoid **352** that presses and pulls a proximal end portion of the latch arm **351**. The latch arm **351** is disposed in a position where a distal end thereof contacts the circumferential surface of the first cam **313** of the first gear **310**.

The following will describe the operation of the feeder portion **3** structured as described above.

During standby shown in FIGS. **8**A to **8**C, the recessed portion **322**C on the first surface **322**A of the second cam **322** faces the contact portion **244** of the lifting member **240**. Thus, the second cam **322** holds the lifting member **240** in the second position against the urging force of the tension spring S1.

During standby, the second gear **320** is prevented from rotating by engagement of the recessed portion **322**C of the second cam **322** with the contact portion **244** of the lifting member **240**. The first gear **310** is prevented from rotating in such a position that the compression spring S2 is compressed by engagement of the latch arm **351** with the engaging pawl **313**A.

As shown in FIG. **9**A, when it comes time to supply a sheet P, the solenoid **352** is actuated from a standby status, and the latch arm **351** is disengaged from the engaging pawl **313**A of the first gear **310**. Then, as shown in FIGS. **9**A to **9**C, the first gear **310** is caused to rotate counterclockwise in FIG. **9**A by the urging force of the compression spring S2, and the gear teeth of the drive gear portion **311** of the first gear **310** engage the drive gear **330** rotating. Thus, the first gear **310** is driven by the drive gear **330** and starts to rotate.

When the drive gear portion **311** of the first gear **310** rotates, the first stopper portion **316** disposed on a downstream side in a rotation direction of the first gear **310** collides with the second stopper portion **325** of the second gear **320** facing the first gear **310** and presses the second gear **320**. Thus, as shown in FIGS. **10**A to **10**C, the second gear **320** starts to rotate. When the second gear **320** rotates, a surface of the second cam **322** facing the contact portion **244** of the lifting member **240** changes from the first surface **322**A to the second surface **322**B. Thus, the lifting member **240** starts to move upward from the second position toward the first position along the second surface **322**B of the second cam **322** by the urging force of the tension spring S1. When the lifting member **240** moves from the second position to the first position, the lift portions **242** of the lifting member **240** lift the sheet receiving plate **220** from below. Thus, the rear end

portion **222** of the sheet receiving plate **220** starts to move from the remote position to the nearby position.

When the first gear **310** and the second gear **320** rotate, as shown in FIGS. **11**A to **11**C, the sheet receiving plate **220** is located in the nearby position and the gear teeth of the transmission gear portion **312** of the first gear **310** engage the third gear **340**. As the third gear **340** starts to rotate, the feed roller **210** also rotates. Thus, the sheet P received on the sheet receiving plate **220** is supplied by the feed roller **210**.

After the sheet P is supplied, the gear teeth of the transmission gear portion **312** of the first gear **310** are disengaged from the third gear **340**, and the feed roller **210** stops.

When the first gear **310** and the second gear **320** further rotate, the surface of the second cam **322** facing the contact portion **244** of the lifting member **240** changes from the second surface **322**B to the first surface **322**A, and thus the lifting member **240** is pressed downward from the first position to the second position. This also causes the sheet receiving plate **220** to move from the nearby position to the remote position.

Then, as shown in FIG. **8**A, the distal end of the latch arm **351** engages the engaging pawl **313**A of the first gear **310**, and the first gear **310** stops rotating. The recessed portion **322**C of the second cam **322** engages the contact portion **244** of the lifting member **240**, and the second gear **320** stops. In other words, the second cam **322** makes one rotation in time with supplying of a sheet P, causing the lifting member **240** to move from the second position to the first position and then to the second position.

According to the embodiment, the following effects can be obtained.

The lifting member **240** is configured to pivot while contacting the sheet receiving plate **220** such that the sheet receiving plate **220** moves the feed roller **210** vertically. Thus, the lifting member **240** can be made of a thin plate as described in the embodiment. This structure can obviate the need to increase the physical size of the main body **2** compared with a structure to lift the sheet receiving plate **220** by a spring disposed under the she receiving plate **220**. In addition, as the bridging member **120** includes the pivot shaft **241**A about which the lifting member **240** pivots, the need to increase the physical size of the main body **2** can be further obviated.

The lift portions **242** of the lifting member **240** are configured to contact the central portion of the sheet receiving plate **220** in the width direction. With this structure, the sheet receiving portion **220** is resistant to deformation, for example, compared with a structure where the lift portions contact an end portion of the sheet receiving plate **220** in the width direction. Especially, this structure is effective for the sheet receiving plate **220** made of resin like this embodiment.

As the lift portions **242** press the sheet receiving portion **220** upward at a position corresponding to the feed roller **210**, a sheet P on the sheet receiving plate **220** can be brought closer to the feed roller **210** reliably. This structure stabilizes sheet supply operation.

As the connecting portion **240**A and the main portion **240**B of the lifting member **240** are integrally formed of sheet metal, the thickness of the lifting member **240** can be controlled and the stiffness thereof can be ensured.

The drive mechanism **300** to drive the lifting member **240** is disposed only in one end, or the left end, of the lifting member **240** in the width direction. The structure of the drive mechanism **300** can be simplified and thus the need to increase the physical size of the main body **2** can be obviated compared with a structure where the drive mechanism is provided on both ends in the width direction.

The bridging member **120** partly connects the pair of side frames **110** in the rear end portion of the main body **2** where the feed roller **210** is disposed. This structure can hold down the manufacturing cost compared with a case where the bridging member **120** is provided to entirely connect the pair of side frames **110**. In addition, as the bridging member **120** is disposed on a side where the feed roller **210** is provided, the strength of the side frames **110** on the side where the feed roller **210** is provided is stabilized, the feed roller **210** and its surrounding are resistant to distortion, and the accuracy in sheet supply can be improved.

In the front end portion of the main body **2**, the scanner unit holding member **150** is disposed to connect the pair of side frames **110**. Thus, this structure also ensures the strength of the main body **2** on a side where the bridging member **120** is not disposed. In addition, while the bridging member **120** and the scanner unit holding member **150** can be made as small as possible, the entire strength of the main body **2** can be ensured.

In the rear end portion of the main body **2**, the rear chute **140** is disposed to connect the rear end portions of the pair of side frames **110**. Thus, the strength of the rear end portion of the main body **2** can be further improved.

As the bridging member **120** is made of sheet metal, it can be made thinner compared with a case where it is made of resin. Thus, the need to increase the physical size of the main body **2** can be obviated.

The above embodiment shows, but is not limited to, that the main portion **240**B of the lifting member **240** is substantially uniform in size from the end portion proximate to the connecting portion **240**A to the opposite end portion. For example, to ensure the stiffness against the distortion of the lifting member, the main portion may be created thicker in the end portion proximate to the connecting portion.

Specifically, as shown in FIG. **12**A, the lifting member **240** includes the connecting portion **240**A disposed in a central portion of the bridging member **120**, and a main portion **240**C extending leftward from the connecting portion **240**A and integrally formed with the connecting portion **240**A.

The main portion **240**C is narrower in an end portion thereof opposite to the connecting portion **240**A than in an end portion thereof proximate to the connecting portion **240**A. More specifically, the end portion of the main portion **240**C proximate to the connecting portion **240**A is sized substantially equal to the connecting portion **240**A. The main portion **240**C is gradually narrower as it is farther from the connecting portion **240**A toward a central portion of the main portion **240**C. The main portion **240**C is substantially uniform in size in a range from the central portion thereof to the end portion opposite to the connecting portion **240**A.

The main portion **240**C is made thick in a portion thereof subject to distortion and made thin in a portion thereof resistant to distortion. With this structure, the stiffness of the main portion **240**C is ensured and weight of the main portion **240**C is reduced.

To reduce distortion, the main portion **240**C includes a reinforcing portion **246** extending along a pivot shaft of the lifting member **240**. As shown in FIG. **12**B, for example, the reinforcing portion **246** is a recessed portion made by a drawing process such as to protrude downward or in a thickness direction of the lifting member **240**.

As shown in FIG. **12**A, the lifting member **240** has, in the front end portion, a rotation restricting portion **247** that is configured to engage position restricting portions **122** disposed in the bridging portion **120**.

As shown in FIGS. **13** and **14**A, the rotation restricting portion **247** protrudes frontward from a part of the front end of the main portion **240**C, and is bent upward at its end.

The position restricting portions **122** are formed by cutting and raising a part of the bridging member **120**, and each have a hook shape to engage the rotation restricting portion **247**. Specifically, the position restricting portions **122** protrude upward from an upper surface of the bridging member **120** in both end portions of the rotation restricting portion **247** in the left-right direction, and are bent inwardly in the left-right direction above the rotation restricting portion **247**.

With this structure, the position restricting portions **122** sandwich the rotation restricting portion **247** therebetween in the left-right direction, and thus restrict the movement of the rotation restricting portion **247** in the left-right direction is restricted. As the movement of the rotation restricting portion **247** in the left-right direction is restricted, the movement of the lifting member **240** in the left-right direction is restricted. This prevents the lifting member **240** from coming off from the bridging member **240**.

As shown in FIG. **14**B, the bent portion of the rotation restricting portion **247** moves toward the upper surface of the bridging member **120** when the rear end portion of the lifting member **240** moves upward. If the rear end portion of the lifting member **240** moves upward greatly, the rotation restricting portion **247** contacts the upper surface of the bridging member **120** to restrict the rotation of the lifting member **240**. This prevents the lifting member **240** from rotating excessively and getting damaged.

The above embodiment shows, but is not limited to, that the bridging member **120** constitutes at least a part of the bottom surface of the main body. The bridging member **120** may constitute the entire bottom surface of the main body **2**.

The above embodiment shows, but is not limited to, that the bridging member **120** connects some parts of the rear end portions of the side frames **110**. The bridging member **120** may connect the entire of the side frames **110** or some parts of the front end portions of the side frames **110**.

The above embodiment shows, but is not limited to, that the guide members **230** are exposed to the bottom surface of the main body **2**. The guide members **230** may not be exposed to the bottom surface of the main body **2**.

The sheets P, as an example of recording sheets, may include thick paper, postcards, thin paper, and transparencies.

While the features herein have been described in connection with various example structures and illustrative aspects, it will be understood by those skilled in the art that other variations and modifications of the structures and aspects described above may be made without departing from the scope of the inventions described herein. Other structures and aspects will be apparent to those skilled in the art from a consideration of the specification or practice of the features disclosed herein. It is intended that the specification and the described examples only are illustrative with the true scope of the inventions being defined by the following claims.

What is claimed is:

1. An image forming apparatus comprising:

an image forming portion configured to form an image on a recording sheet;

a main body including a pair of frames and a bridging member, the pair of frames facing each other with the image forming portion there between, the bridging member connecting the pair of frames, the bridging member having a lower surface exposed to an outside of the image forming apparatus;

a feed roller;

a sheet receiving plate configured to receive the recording sheet, and pivot between a nearby position where the sheet receiving plate is disposed near the feed roller and a remote position where the sheet receiving plate is disposed remote from the feed roller; and

a lifting member disposed under the sheet receiving plate, the lifting member being configured to lift the sheet receiving plate such that the sheet receiving plate is disposed in the nearby position, the lifting member including a pivot shaft and a lift portion disposed downstream from the pivot shaft in a sheet conveying direction, the pivot shaft being rotatably supported by the bridging member, the lift portion being configured to contact a lower surface of the sheet receiving plate,

wherein the bridging member covers, from below, a portion of the lower surface of the sheet receiving plate disposed immediately above the pivot shaft of the lifting member, the lower surface of the sheet receiving plate including an exposed portion downwardly exposed to the outside of the image forming apparatus without being covered by the bridging member.

2. The image forming apparatus according to claim **1**,

wherein the sheet receiving plate has a first end portion and a second end portion opposite to the first end portion, the sheet receiving plate is configured to pivot about the first end portion, the second end portion faces the feed roller, the second end portion is disposed near the feed roller when the sheet receiving plate is in the nearby position, and the second end portion is disposed remote from the feed roller when the sheet receiving plate is in the remote position, and

wherein the lifting member is configured to pivot about the pivot shaft between a first position where the sheet receiving plate is lifted and disposed in the nearby position and a second position where the sheet receiving plate is disposed in the remote position, when the lifting member pivots from the second position to the first position, the lift portion contacts and lifts the recording sheet receiving plate.

3. The image forming apparatus according to claim **2**, wherein the lift portion contacts the lower surface of the sheet receiving plate at a position overlapping the feed roller in a thickness direction of the sheet receiving plate.

4. The image forming apparatus according to claim **2**, wherein the bridging member connects a part, disposed proximate to the first end portion of the sheet receiving plate, of each of the pair of frames.

5. The image forming apparatus according to claim **4**, further comprising an exposure unit holding member disposed in a portion, disposed proximate to the second end portion of the sheet receiving plate, of the main body, the exposure holding member connecting the pair of frames and being configured to hold an exposure unit.

6. The image forming apparatus according to claim **4**, further comprising a guide member configured to guide the recording sheet fed by the feed roller to the image forming portion, the guide member connecting a side, proximate to the first end portion of the sheet receiving plate, of each of the pair of frames to one another.

7. The image forming apparatus according to claim **2**,

wherein the bridging member is shaped like a flat plate, and

wherein an edge of the second end portion of the sheet receiving plate disposed in the nearby position overlaps the bridging member as viewed along a flat surface of the bridging member.

8. The image forming apparatus according to claim 1, wherein the lift portion is disposed in a position corresponding to the feed roller in a width direction of the sheet receiving plate.

9. The image forming apparatus according to claim 1, wherein the lift portion contacts a central portion of the lower surface of the sheet receiving plate in a width direction thereof.

10. The image forming apparatus according to claim 9, wherein the sheet receiving plate is made of resin.

11. The image forming apparatus according to claim 9,

wherein the lifting member includes a connection portion connecting the pivot shaft and the lift portion, and a main portion extending from the connection portion toward one of the pair of frames, and

wherein the image forming apparatus further comprises a drive mechanism disposed in an end portion of the main body opposite from the connection portion and configured to drive the lift member.

12. The image forming apparatus according to claim 11,

wherein the connection portion and the main portion are made of sheet metal, and

wherein the main portion has a first end portion proximate to the connection portion, which is larger than a second end portion opposite to the first end portion.

13. The image forming apparatus according to claim 12, wherein the main portion extends along an axis of the lifting member and includes a reinforcing portion protruding in a thickness direction of the lifting member.

14. The image forming apparatus according to claim 1, wherein the lifting member includes a rotation restricting portion configured to contact the bridging member to restrict rotation of the lifting member.

15. The image forming apparatus according to claim 1,

wherein the sheet receiving plate includes a pair of guide members configured to adjust a position of the recording sheet received on the sheet receiving plate in a width direction of the recording sheet, and

wherein the pair of guide members are partially exposed from the exposed portion of the lower surface of the sheet receiving plate downwardly to the outside of the image forming apparatus.

16. The image forming apparatus according to claim 1, wherein the bridging member is made of sheet metal.

17. The image forming apparatus according to claim 1, wherein the pivot shaft is made of resin and has a circular cross section.

18. The image forming apparatus according to claim 1, wherein, when the sheet receiving plate is in the remote position, the lower surface of the bridging member and the exposed portion of the lower surface of the sheet receiving plate, which are downwardly exposed to the outside of the image forming apparatus, constitute a lower surface of the image forming apparatus.

19. An image forming apparatus comprising:

an image forming portion configured to form an image on a recording sheet;

a main body including a pair of frames and a bridging member, the pair of frames facing each other with the image forming portion therebetween, the bridging member connecting the pair of frames, the bridging member having a lower surface exposed to an outside of the image forming apparatus;

a feed roller;

a sheet receiving plate configured to receive the recording sheet, and pivot between a nearby position where the sheet receiving plate is disposed near the feed roller and a remote position where the sheet receiving plate is disposed remote from the feed roller; and

a lifting member disposed under the sheet receiving plate and rotatably supported by the bridging member, the lifting member being configured to lift the sheet receiving plate such that the sheet receiving plate is disposed in the nearby position, the lifting member having a pivot axis and including a lift portion, the lift portion being disposed downstream from the pivot axis in a sheet conveying direction and configured to contact a lower surface of the sheet receiving plate,

wherein the bridging member covers, from below, a portion of the lower surface of the sheet receiving plate disposed immediately above the pivot axis of the lifting member, the lower surface of the sheet receiving plate including an exposed portion downwardly exposed to the outside of the image forming apparatus without being covered by the bridging member.

20. The image forming apparatus according to claim 19, wherein, when the sheet receiving plate is in the remote position, the lower surface of the bridging member and the exposed portion of the lower surface of the sheet receiving plate, which are downwardly exposed to the outside of the image forming apparatus, constitute a lower surface of the image forming apparatus.

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